

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

CONSENT ORDER

**Rayonier Performance Fibers, LLC
Jesup, Georgia
Wayne County**

**ORDER NO. EPD-WQ- 4837
Amendment 1**

Whereas, Rayonier Performance Fibers, LLC (hereinafter called "Rayonier") presently owns and operates a dissolving pulp mill (hereinafter called the "Facility") in Jesup, Wayne County, Georgia; and

Whereas, the Facility discharges into the Altamaha River through two distinct permitted outfalls; and

Whereas, pursuant to the State of Georgia Office of State Administrative Hearings' Administrative Law Judge's February 11, 2002 Order on Intervenor's Motion for Summary Determination, the Facility is regulated as a Dissolving Kraft Subcategory under 40 C.F.R. Part 430, Subpart A; and

Whereas, the Facility is the only such facility in the State of Georgia and is one of only three currently operating in the United States; and

Whereas, on May 25, 2001, the Georgia Department of Natural Resources, Environmental Protection Division ("EPD" or the "Division") issued to Rayonier National Pollutant Discharge Elimination System Permit No. GA0003620, with respect to the discharge of treated wastewater from Rayonier's Facility (the "Permit"); and

Whereas, the Facility is subject to, among other regulations, the Ga. Comp. R. & Regs. r. 391-3-6-.03(5), General Criteria for All Waters; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c), which states that "all waters shall be free from material related to municipal, industrial, or other discharges which produce turbidity, color, odor, or other objectionable conditions which interfere with legitimate water quality uses"; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(d), which states that "all waters shall be free from turbidity which results in a substantial visual contrast in a water body due to man-made activity"; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d) are narrative water quality standards rather than numeric standards ("Narrative Water Quality Standards"); and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(d)(1)(iii), if EPD concludes that a facility's discharge causes or has the reasonable potential to cause a violation of a narrative standard, the facility's permit must contain an effluent limit for the pollutant; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(d)(1)(ii), when determining whether a discharge has the reasonable potential to violate a Narrative Water Quality Standard, EPD considers the existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, the sensitivity of species to toxicity testing (when evaluating whole effluent

toxicity), and where appropriate, the dilution of the effluent in the receiving water;
and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and 40 C.F.R. § 122.44(d)(vi) sets out the options by which, if EPD determines that a discharge has the reasonable potential to violate a Narrative Water Quality Standard, EPD can establish an effluent limit for the pollutant; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(k)(3), effluent limitations may take the form of Best Management Practices when numeric limitations are not feasible; and

Whereas, EPD's policy regarding color discharges from existing facilities is that, upon permit reissuance, existing facilities with color in their effluent are required to collect color samples upstream and downstream of their discharge and to conduct an assessment of the sources of color; and

Whereas, the Permit required Rayonier to conduct a color impact study for its Facility; and

Whereas on June 22, 2001, the Altamaha Riverkeeper, Inc. ("ARK") challenged the issuance of the Permit, alleging that the Permit did not meet certain requirements of the federal Clean Water Act and Georgia law (the "Permit Challenge"); and

Whereas, ARK and Rayonier's predecessor-in-interest ("the Parties") entered into a settlement agreement dated as of April 15th 2002 (the "Settlement Agreement") to resolve the issues related to the Permit Challenge; and

Whereas, the EPD and an Office of State Administrative Hearings' Administrative Law Judge reviewed and accepted the Settlement Agreement to resolve the Permit Challenge; and

Whereas, Rayonier has submitted an application for a renewal of the Permit which has been extended administratively by the EPD ("Permit Application"); and

Whereas, on July 31, 2007, EPD received a citizen complaint regarding the Facility's effluent; and

Whereas, the citizen complaint alleged that the Facility's discharge violated the Narrative Water Quality Standards; and

Whereas, EPD has concluded that the aesthetic impact of the Facility's discharge has the reasonable potential to violate the Narrative Water Quality Standards because it has the reasonable potential to produce turbidity or other objectionable conditions that interfere with legitimate water quality uses of the Altamaha River and it has the reasonable potential to cause turbidity that results in a substantial visual contrast in the Altamaha River due to man-made activity; and

Whereas, EPD, under the Georgia Water Quality Act, has the authority to issue and enforce National Pollutant Discharge Elimination System permits that

ensure compliance with applicable standards, including the state water quality standards; and

Whereas, Rayonier does not agree with EPD's conclusion that its Facility has a reasonable potential to violate the Narrative Water Quality Standards, but wishes to avoid the time and expense of litigation and resolve these matters with EPD; and

Whereas, both Rayonier and EPD wish to cooperate fully to resolve the issues in this Order; and

Whereas, Consent Order No. EPD-WQ-4837 (Order) was executed between the Director of the Georgia Environmental Protection Division (Director, EPD) and Rayonier Performance Fibers on March 6, 2008; and

Whereas, Rayonier currently estimates that, implementing the Color Reduction Plan outlined below over the life of this Order will cost between \$65 and \$75 million.

Whereas, on May 21, 2009, Rayonier submitted a revised timeline schedule to EPD for making changes in the oxygen delignification project, Condition 2.d, and the Deadlines Table in Condition 3.a.

NOW, THEREFORE, before taking any testimony and without adjudicating the merits of the parties' positions in this matter, and without admission or assignment of liability by Rayonier, the parties hereby amend the Order upon the order of the Director and the consent of Rayonier as follows:

1. Color Reduction Plan. Rayonier shall implement the following Color Reduction Plan at its Facility.

a. Brownstock Washing. Reducing color from the effluent at the Facility is dependent upon capturing more black liquor from the pulping and brownstock washing processes and limiting the volume of black liquor that enters the wastewater treatment system. In order to capture more liquor, the Facility must install new technology, modify existing processes, and change certain operational practices.

i. Improved brownstock washing is a known method for capturing more black liquor and reducing the amount of color carried through the process. Brownstock washing efficiency is described in terms of carryover of kilograms (kg) of sodium sulfate (Na_2SO_4) remaining in each ton of washed pulp (expressed in air dried metric tons – ADMT). The Environmental Protection Agency (EPA) recognizes 10 kg/ADMT sodium sulfate carryover as representing 99% effective brownstock washing and the technology basis for establishing effluent guidelines for papergrade kraft pulp facilities.¹

ii. Rayonier shall install equipment and make related process changes in its A and B mills that will improve effectiveness of brownstock washing. The goal of these improvements shall be designed to reduce salt cake carryover from the brownstock

¹ While the Facility is not subject to the papergrade kraft technology-based effluent guidelines, the parties agree that such guidelines are instructive in analyzing the efficiency of the brownstock washing and O_2 Delignification at the Facility.

washing operation to at or below 10 kg/ADMT of sodium sulfate in unbleached, washed pulp.

b. Oxygen Delignification and Filtrate Recycling. Oxygen delignification ("O₂ Delignification") can also be used to recover additional black liquor from papergrade kraft pulp. The amount of delignification is expressed as a "kappa number". EPA recognizes extended delignification in softwood as a kappa value of 20 or lower.

i. Rayonier shall install an oxygen delignification system in its C mill. The system shall be a two-stage system targeted to reduce the kappa number of pulp entering the first bleaching stage to between 12 and 16 kappa units.

ii. Post delignification washing filtrate will be recycled through the brownstock washers, combined with brownstock washing filtrate, and further processed in the mill's recovery cycle.

c. Spill Recovery. Rayonier shall continue to upgrade its black liquor spill recovery systems, using customary engineering practices developed in the industry. The system shall be designed to recover spills and to pump the spills to the mill's main black liquor recovery system, directly or via appropriate intermediate stages. A minimum of eight (8) spill collection systems, complete with proper instrumentation, shall be installed in areas in the mill where black liquor is stored, handled, or could enter the mill's sewer system (e.g., digesters, knot pads, and recovery operations).

d. Operating Practices (C-Mill Screen Room). The screening operation in C mill shall be designed to be operated in a "closed" condition, which means that color containing filtrate streams will be recycled with the exception of a purge stream for sand removal and rejects from the brownstock cleaners.

e. Color Balance. In order to understand and control color contributions to the mill sewer, Rayonier shall conduct a mill color balance not less than once every six months. The color balance shall be designed to measure the contribution of color compounds from the various mill process elements, and shall be sufficiently detailed to identify the source of untreated discharges of colored material, measured before the effluent treatment plant.

f. Color Reduction Technologies. The above referenced brownstock washing improvements, O₂ Delignification, filtrate recycling, spill recovery, operating practices and color balances (the "Color Reduction Technologies"), constitute the Facility's Best Management Practices and serve as the appropriate means to achieve compliance with the Narrative Water Quality Standards, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d).

2. Implementation of Color Reduction Plan. Rayonier shall install and implement the Color Reduction Plan in accordance with the following deadlines:

a. EPD acknowledges that engineering, bidding, contract negotiation, construction (which must be performed during planned mill outages), employee training and full project implementation will take a substantial period due to the magnitude of the Color Reduction Technologies. As more fully described in Section 9 below, Rayonier shall prepare a detailed capital implementation schedule based on the engineering work completed to support the Color Reduction Technologies and improvements described above. The schedule shall provide for consistent implementation of projects over the period specified in this Order, with all components of the Color Reduction Plan completed no later than eighty-four (84) months following the effective date of this Order. Rayonier shall submit to EPD the schedule and provide EPD with semi-annual progress reports as described below.

b. For the period over which the capital improvements required by this Order are implemented, Rayonier shall provide semi-annual progress reports to EPD summarizing the activities and achievements for the previous period and outlining the work plan for the next six months. Each progress report shall be provided to EPD not later than forty-five (45) days following the close of the six-month period covered by the report. The first such progress report shall cover the period commencing with the effective date of this Order and ending six months following the effective date of this Order.

c. As described above, the Color Reduction Technologies consist of three major process improvements and modifications: (1) O₂ Delignification in C mill; (2) improved brownstock washing in A mill, and (3) improved brownstock washing in B mill, each being individually referred to as a "Project" and collectively as the "Projects."

d. The Projects will be implemented in stages. The B mill brownstock washing Project shall be completed within eighteen (18) months following the effective date of this Order. The O₂ Delignification Project in C mill, consisting of additional brownstock washing capacity and the installation of oxygen delignification equipment shall be completed within fifty-one (51) months following the effective date of this Order. The A mill brownstock washing Project and any other remaining work required by the Color Reduction Plan but not designated as one of the capital Projects shall be completed within eighty-four (84) months following the effective date of this Order. Rayonier shall demonstrate progress by providing EPD with semi-annual progress reports as described above.

e. Within thirty-six (36) months following the effective date of this Order Rayonier shall install eight spill collection systems in addition to those that it employed at the beginning of 2007. Two (2) shall be installed not later than twelve (12) months following the effective date of this Order; an additional three (3) not later than twenty-four (24) months following the effective date of this Order; and the final three (3) not later than thirty-six (36) months following the effective date of this Order. All spill collection

systems shall be commissioned and operators trained within forty-eight (48) months of the effective date of this Order. Rayonier shall provide updates to EPD in the semi-annual progress reports until such time as all spill collection systems are commissioned and operators trained.

3. Color Limits.

a. Rayonier shall achieve at least the color discharge performance specified in the following chart commencing with the expiration of each deadline, which deadline shall be calculated from the effective date of this Order:

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 57 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

b. The Color Limits shall be annual averages, expressed in U.S. tons (2,000 pounds) of color per day, consistent with the above-described limits. The Annual Average is the arithmetic average of color results for any daily samples taken in any calendar year. A daily sample is any grab sample or composite sample for any calendar day. Daily samples shall be taken at least five (5) times per week.

c. The Color Limits specified in the table above shall be incorporated into the Permit upon the Permit's renewal.

4. Diffuser. Rayonier shall also conduct an engineering study to evaluate the feasibility, cost, and effect of installing a diffuser at its discharge to further minimize the aesthetic impact of color on the Altamaha River. The diffuser study should also evaluate the need for Rayonier to obtain additional permits for its installation, including, but not limited to, a permit from U. S. Army Corps of Engineers. Rayonier shall submit the results of the feasibility study to EPD within twelve (12) months of the Order's effective date.

5. Contingency for Evaporation and Recovery Capacity. The Color Reduction Technologies and compliance with the Color Limits largely depend on additional collection of black liquor. A project to upgrade evaporation capacity may be required to manage the added black liquor volume. In order to accommodate the increased evaporator and boiler capacity, and to sustain Facility production increases, Rayonier may need to obtain a Prevention of Significant Deterioration ("PSD") or other permits from EPD or other regulatory agencies. If Rayonier requires additional permits to meet the limits contained in this Order, Rayonier shall notify EPD of the permits that are required and shall diligently pursue obtaining any and all such permits. If the required permits are not issued, are delayed or are issued with more restrictive limits or conditions than Rayonier requested, Rayonier shall implement the requirements of this Order to the fullest extent possible in a manner that achieves compliance with

existing or modified permits and that does not adversely impact the production capacity of the Facility.

6. Best Available Technology. As stated by EPA in its Notice of Preliminary 2006 Effluent Guideline Program Plan, 70 FR 51042 (Aug. 29, 2005), EPD may use its Best Professional Judgment to develop new dissolving Kraft mill effluent limits applicable to Rayonier's Jesup mill. Those limits are to be based on Best Available Technology Economically Achievable ("BAT"). In its NPDES renewal Permit application, Rayonier has stated that it believes that the BAT for the Jesup mill is demonstrated by the current operation of the mill. However, if it is determined by EPD that some or all of the Color Reduction Technologies must be implemented to meet the effluent limits for the mill, then those technologies shall be implemented on the schedule provided in Section 2 herein.

7. Force Majeure. Failure to complete a condition mandated by this Consent Order within the time period specified may be excused and not subject Rayonier to further enforcement action if the failure is the result of a force majeure event as identified below and Rayonier complies with the requirements set forth below. Rayonier shall have the burden of proving to the Division that it was rendered unable, wholly or in part, by Force Majeure to carry out its obligations.

The term "Force Majeure" as used herein shall be limited to the following: Act of God; strike, lockout, or other labor or industrial disturbance not caused by an unfair labor practice by the Rayonier; act of the public enemy; war; blockade; public riot; fire; storm; flood; explosion; failure to secure timely and necessary federal, state, or local approvals or permits, provided such approvals or permits

have been timely and diligently sought; or other delay caused by unforeseeable circumstances beyond the reasonable control of Rayonier, its employees, agents, consultants, or contractors. Force Majeure does not include financial inability to perform an obligation required by this Consent Order or a failure to achieve compliance with applicable regulatory permits.

Rayonier shall notify the Division in writing within thirty (30) days after Rayonier learns of an occurrence Rayonier believes constitutes a Force Majeure. Such written notice shall include Rayonier's best estimate of the anticipated length (if known) and cause of any delay due to Force Majeure. Failure to so notify the Division shall constitute a waiver of any claim to Force Majeure.

Rayonier and the Division agree to negotiate informally and in good faith to identify delays resulting from Force Majeure. Rayonier shall comply with the Division's determination as to the appropriate time period to be excused by Force Majeure, which shall be communicated to Rayonier in writing. In the event that any circumstance or series of circumstances cause the schedule to extend over thirty (30) calendar days, Rayonier and the Division shall meet formally to assess the overall schedule impact and attempt to mitigate same. Any Force Majeure event or events that cause the schedule to extend over sixty (60) consecutive days shall be noticed to the citizens of Wayne County in a form to be determined by the Division.

If Force Majeure has occurred, the affected time for performance specified in this Consent Order shall be extended for a period of time equal to the delay

resulting from such Force Majeure. Rayonier shall exercise due diligence and adopt all reasonable measures to avoid or minimize any delay.

8. Changed Circumstances. Rayonier may petition EPD to modify the terms of this Order in the event of changed circumstances, and EPD agrees to consider such petition in good faith. Such circumstances may include, but are not limited to, significant changes in the operation of the mill and the availability of new, improved or more cost-effective color reducing technologies or methods that may complement or replace the Color Reduction Technologies that Rayonier is required to implement herein.

9. Permit Application Modification/Permit Incorporation. If, upon execution of this Order, Rayonier's Permit has not been renewed, Rayonier shall modify its Permit application to incorporate paragraphs 1 through 6 of this Order (hereinafter the "Key Provisions"). The renewal Permit shall include the Key Provisions that are to be implemented within the term of such renewal Permit. Any remaining Key Provisions with completion dates beyond the term of the renewal Permit shall be incorporated into any subsequent Permit(s).

Completing the Projects defined in Section 2.c. will require numerous phases of design and construction (hereinafter the "Interim Projects"). The Projects and the Interim Projects shall be completed in accordance with a detailed schedule to be proposed by Rayonier that shall be included in the renewal Permit. This schedule shall provide that Rayonier shall complete a Project or an Interim Project no less frequently than every nine (9) months and shall report each such completion in writing to EPD within fourteen (14) days.

Rayonier shall provide EPD with updates regarding the implementation of the Projects and Interim Projects in the semi-annual reports required under Section 2.b. Rayonier shall inform EPD of any necessary modifications to the schedule of Interim Projects in the semi-annual reports.

10. Termination of Order. This Order shall terminate the earliest of the completion of the installation of the Color Reduction Technologies, when EPD issues a renewal Permit that incorporates the final Key Provisions, or at such time EPD is prohibited by court order from incorporating any Key Provision in any subsequent Permit.

11. Captions. All headings contained herein are not to be considered in the construction or interpretation of this Agreement, as they are included for reference only.

12. Non-Admission of Liability. This Order is executed and entered solely for the purpose of resolving and disposing of the allegations set forth herein and does not constitute a finding, adjudication, or evidence of a violation of any law, rule, or regulation by Rayonier, and, by consenting to this Order, Rayonier does not admit to any factual allegation contained herein or to any violations of State laws. In addition, this Order is not intended to create and it shall not be construed or otherwise deemed to recognize or create any claim, right, liability, estoppel, or waiver of rights in favor of any third-party or parties.

13. Stipulated Penalties.

a. The failure of Rayonier to meet the deadlines for implementing the Color Reduction Plan (as specified in Section 2 of the Order) or report submittals shall result in the following stipulated penalties:

Period of Non-Compliance	Stipulated Penalty (Plan deadline)	Stipulated Penalty (Report submittals)
1 st through 60 th day	\$1,000	\$100
61 st through 120 th day	\$2,500	\$250
121 st day and beyond	\$5,000	\$500

b. The above stipulated penalties shall not apply to the Color Limits, which shall become enforceable Permit terms. Stipulated Penalties shall apply only to the failure to complete the Projects defined in Section 2.c by the deadlines set forth in Section 2.d. They shall not apply to a failure to complete an Interim Project by the date set forth on the schedule to be included in the renewal Permit. Notwithstanding this, EPD reserves the right to pursue an enforcement action for a failure to complete or install an Interim Project every nine months unless such failure is excused under the terms of this Consent Order.

14. Effect of Order.

This Order does not waive the Director's right to take further enforcement action against Rayonier, or imply that the Director will not take such action, either for (1) violations referenced herein if Rayonier fails to fully comply with the conditions of this Order, or (2) violations not referenced herein based on any other relevant requirements of this Order, the law, rules, and permit(s).

By agreement of the parties, this Order shall have the same force and binding effect as a Final Order of the Director, and shall become final and effective immediately upon its execution by the Director. The parties further agree that this Order shall not be appealable by Rayonier, and Rayonier hereby waives its right to initiate any administrative or judicial hearing on the terms and conditions of this Order.

Unless modified or terminated by a subsequent order, or otherwise specified in writing by the Director, this Order shall be deemed satisfied and terminated upon full, complete, and timely performance of each and every condition set forth herein.

It is so ORDERED and AGREED to this 18th day of August 2009.



CAROL A. COUCH, DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

RAYONIER PERFORMANCE FIBERS, LLC

BY:



NAME: W. Michael Burch

TITLE: Vice President & General Manager

DATE: 7/10/09

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

CONSENT ORDER

**Rayonier Performance Fibers, LLC
Jesup, Georgia
Wayne County**

**ORDER NO. EPD-WQ- 4837
Amendment 2**

Whereas, Rayonier Performance Fibers, LLC (hereinafter called "Rayonier") presently owns and operates a dissolving pulp mill (hereinafter called the "Facility") in Jesup, Wayne County, Georgia; and

Whereas, the Facility discharges into the Altamaha River through two distinct permitted outfalls; and

Whereas, pursuant to the State of Georgia Office of State Administrative Hearings' Administrative Law Judge's February 11, 2002 Order on Intervenor's Motion for Summary Determination, the Facility is regulated as a Dissolving Kraft Subcategory under 40 C.F.R. Part 430, Subpart A; and

Whereas, the Facility is the only such facility in the State of Georgia and is one of only three currently operating in the United States; and

Whereas, on May 25, 2001, the Georgia Department of Natural Resources, Environmental Protection Division ("EPD" or the "Division") issued to Rayonier National Pollutant Discharge Elimination System Permit No. GA0003620, with respect to the discharge of treated wastewater from Rayonier's Facility (the "Permit"); and

Whereas, the Facility is subject to, among other regulations, the Ga. Comp. R. & Regs. r. 391-3-6-.03(5), General Criteria for All Waters; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c), which states that "all waters shall be free from material related to municipal, industrial, or other discharges which produce turbidity, color, odor, or other objectionable conditions which interfere with legitimate water quality uses"; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(d), which states that "all waters shall be free from turbidity which results in a substantial visual contrast in a water body due to man-made activity"; and

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toxicity), and where appropriate, the dilution of the effluent in the receiving water;
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Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and 40 C.F.R. § 122.44(d)(vi) sets out the options by which, if EPD determines that a discharge has the reasonable potential to violate a Narrative Water Quality Standard, EPD can establish an effluent limit for the pollutant; and

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Whereas, ARK and Rayonier's predecessor-in-interest ("the Parties") entered into a settlement agreement dated as of April 15th 2002 (the "Settlement Agreement") to resolve the issues related to the Permit Challenge; and

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Whereas, the citizen complaint alleged that the Facility's discharge violated the Narrative Water Quality Standards; and

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ensure compliance with applicable standards, including the state water quality standards; and

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Whereas, both Rayonier and EPD wish to cooperate fully to resolve the issues in this Order; and

Whereas, Consent Order No. EPD-WQ-4837 (Order) was executed between the Director of the Georgia Environmental Protection Division (Director, EPD) and Rayonier Performance Fibers on March 6, 2008; and

Whereas, Rayonier currently estimates that, implementing the Color Reduction Plan outlined below over the life of this Order will cost between \$65 and \$75 million.

Whereas, on May 21, 2009, Rayonier submitted a revised timeline schedule to EPD for making changes in the oxygen delignification project, Condition 2.d, and the Deadlines Table in Condition 3.a.

Whereas, on August 10, 2010, Rayonier submitted a revised schedule to EPD for the completion of the oxygen delignification project, Condition 2.d.

Whereas, all "effective" date conditions referenced in this order are based on the original execution date of March 6, 2008.

NOW, THEREFORE, before taking any testimony and without adjudicating the merits of the parties' positions in this matter, and without admission or

assignment of liability by Rayonier, the parties hereby amend the Order upon the order of the Director and the consent of Rayonier as follows:

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b. Oxygen Delignification and Filtrate Recycling. Oxygen delignification ("O₂ Delignification") can also be used to recover additional black liquor from papergrade kraft pulp. The amount of delignification is expressed as a "kappa number". EPA recognizes extended delignification in softwood as a kappa value of 20 or lower.

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ii. Post delignification washing filtrate will be recycled through the brownstock washers, combined with brownstock washing filtrate, and further processed in the mill's recovery cycle.

c. Spill Recovery. Rayonier shall continue to upgrade its black liquor spill recovery systems, using customary engineering practices developed in the industry. The system shall be designed to recover spills and to pump the spills to the mill's main black liquor recovery system, directly or via appropriate intermediate stages. A minimum of eight (8) spill collection

systems, complete with proper instrumentation, shall be installed in areas in the mill where black liquor is stored, handled, or could enter the mill's sewer system (e.g., digesters, knot pads, and recovery operations).

d. Operating Practices (C-Mill Screen Room). The screening operation in C mill shall be designed to be operated in a "closed" condition, which means that color containing filtrate streams will be recycled with the exception of a purge stream for sand removal and rejects from the brownstock cleaners.

e. Color Balance. In order to understand and control color contributions to the mill sewer, Rayonier shall conduct a mill color balance not less than once every six months. The color balance shall be designed to measure the contribution of color compounds from the various mill process elements, and shall be sufficiently detailed to identify the source of untreated discharges of colored material, measured before the effluent treatment plant.

f. Color Reduction Technologies. The above referenced brownstock washing improvements, O₂ Delignification, filtrate recycling, spill recovery, operating practices and color balances (the "Color Reduction Technologies"), constitute the Facility's Best Management Practices and serve as the appropriate means to achieve compliance with the Narrative Water Quality Standards, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d).

2. Implementation of Color Reduction Plan. Rayonier shall install and implement the Color Reduction Plan in accordance with the following deadlines:
- a. EPD acknowledges that engineering, bidding, contract negotiation, construction (which must be performed during planned mill outages), employee training and full project implementation will take a substantial period due to the magnitude of the Color Reduction Technologies. As more fully described in Section 9 below, Rayonier shall prepare a detailed capital implementation schedule based on the engineering work completed to support the Color Reduction Technologies and improvements described above. The schedule shall provide for consistent implementation of projects over the period specified in this Order, with all components of the Color Reduction Plan completed no later than eighty-four (84) months following the effective date of this Order. Rayonier shall submit to EPD the schedule and provide EPD with semi-annual progress reports as described below.
 - b. For the period over which the capital improvements required by this Order are implemented, Rayonier shall provide semi-annual progress reports to EPD summarizing the activities and achievements for the previous period and outlining the work plan for the next six months. Each progress report shall be provided to EPD not later than forty-five (45) days following the close of the six-month period covered by the report. The first such progress report shall cover the period commencing with the effective

date of this Order and ending six months following the effective date of this Order.

c. As described above, the Color Reduction Technologies consist of three major process improvements and modifications: (1) O₂ Delignification in C mill; (2) improved brownstock washing in A mill, and (3) improved brownstock washing in B mill, each being individually referred to as a "Project" and collectively as the "Projects."

d. The Projects will be implemented in stages. The B mill brownstock washing Project shall be completed within eighteen (18) months following the effective date of this Order. The O₂ Delignification Project in C mill, consisting of additional brownstock washing capacity and the installation of oxygen delignification equipment shall be completed within sixty-three (63) months following the effective date of this Order. The A mill brownstock washing Project and any other remaining work required by the Color Reduction Plan but not designated as one of the capital Projects shall be completed within eighty-four (84) months following the effective date of this Order. Rayonier shall demonstrate progress by providing EPD with semi-annual progress reports as described above.

e. Within thirty-six (36) months following the effective date of this Order Rayonier shall install eight spill collection systems in addition to those that it employed at the beginning of 2007. Two (2) shall be installed not later than twelve (12) months following the effective date of this Order; an additional three (3) not later than twenty-four (24) months following the

effective date of this Order; and the final three (3) not later than thirty-six (36) months following the effective date of this Order. All spill collection systems shall be commissioned and operators trained within forty-eight (48) months of the effective date of this Order. Rayonier shall provide updates to EPD in the semi-annual progress reports until such time as all spill collection systems are commissioned and operators trained.

3. Color Limits.

a. Rayonier shall achieve at least the color discharge performance specified in the following chart commencing with the expiration of each deadline, which deadline shall be calculated from the effective date of this Order:

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 57 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

b. The Color Limits shall be annual averages, expressed in U.S. tons (2,000 pounds) of color per day, consistent with the above-described limits. The Annual Average is the arithmetic average of color results for any daily samples taken in any calendar year. A daily sample is any grab

sample or composite sample for any calendar day. Daily samples shall be taken at least five (5) times per week.

c. The Color Limits specified in the table above shall be incorporated into the Permit upon the Permit's renewal.

4. Diffuser. Rayonier shall also conduct an engineering study to evaluate the feasibility, cost, and effect of installing a diffuser at its discharge to further minimize the aesthetic impact of color on the Altamaha River. The diffuser study should also evaluate the need for Rayonier to obtain additional permits for its installation, including, but not limited to, a permit from U. S. Army Corps of Engineers. Rayonier shall submit the results of the feasibility study to EPD within twelve (12) months of the Order's effective date.

5. Contingency for Evaporation and Recovery Capacity. The Color Reduction Technologies and compliance with the Color Limits largely depend on additional collection of black liquor. A project to upgrade evaporation capacity may be required to manage the added black liquor volume. In order to accommodate the increased evaporator and boiler capacity, and to sustain Facility production increases, Rayonier may need to obtain a Prevention of Significant Deterioration ("PSD") or other permits from EPD or other regulatory agencies. If Rayonier requires additional permits to meet the limits contained in this Order, Rayonier shall notify EPD of the permits that are required and shall diligently pursue obtaining any and all such permits. If the required permits are not issued, are delayed or are issued with more restrictive limits or conditions than Rayonier requested, Rayonier shall implement the requirements of this

Order to the fullest extent possible in a manner that achieves compliance with existing or modified permits and that does not adversely impact the production capacity of the Facility.

6. Best Available Technology. As stated by EPA in its Notice of Preliminary 2006 Effluent Guideline Program Plan, 70 FR 51042 (Aug. 29, 2005), EPD may use its Best Professional Judgment to develop new dissolving Kraft mill effluent limits applicable to Rayonier's Jesup mill. Those limits are to be based on Best Available Technology Economically Achievable ("BAT"). In its NPDES renewal Permit application, Rayonier has stated that it believes that the BAT for the Jesup mill is demonstrated by the current operation of the mill. However, if it is determined by EPD that some or all of the Color Reduction Technologies must be implemented to meet the effluent limits for the mill, then those technologies shall be implemented on the schedule provided in Section 2 herein.

7. Force Majeure. Failure to complete a condition mandated by this Consent Order within the time period specified may be excused and not subject Rayonier to further enforcement action if the failure is the result of a force majeure event as identified below and Rayonier complies with the requirements set forth below. Rayonier shall have the burden of proving to the Division that it was rendered unable, wholly or in part, by Force Majeure to carry out its obligations.

The term "Force Majeure" as used herein shall be limited to the following: Act of God; strike, lockout, or other labor or industrial disturbance not caused by an unfair labor practice by the Rayonier; act of the public enemy; war; blockade; public riot; fire; storm; flood; explosion; failure to secure timely and necessary

federal, state, or local approvals or permits, provided such approvals or permits have been timely and diligently sought; or other delay caused by unforeseeable circumstances beyond the reasonable control of Rayonier, its employees, agents, consultants, or contractors. Force Majeure does not include financial inability to perform an obligation required by this Consent Order or a failure to achieve compliance with applicable regulatory permits.

Rayonier shall notify the Division in writing within thirty (30) days after Rayonier learns of an occurrence Rayonier believes constitutes a Force Majeure. Such written notice shall include Rayonier's best estimate of the anticipated length (if known) and cause of any delay due to Force Majeure. Failure to so notify the Division shall constitute a waiver of any claim to Force Majeure.

Rayonier and the Division agree to negotiate informally and in good faith to identify delays resulting from Force Majeure. Rayonier shall comply with the Division's determination as to the appropriate time period to be excused by Force Majeure, which shall be communicated to Rayonier in writing. In the event that any circumstance or series of circumstances cause the schedule to extend over thirty (30) calendar days, Rayonier and the Division shall meet formally to assess the overall schedule impact and attempt to mitigate same. Any Force Majeure event or events that cause the schedule to extend over sixty (60) consecutive days shall be noticed to the citizens of Wayne County in a form to be determined by the Division.

If Force Majeure has occurred, the affected time for performance specified in this Consent Order shall be extended for a period of time equal to the delay

resulting from such Force Majeure. Rayonier shall exercise due diligence and adopt all reasonable measures to avoid or minimize any delay.

8. Changed Circumstances. Rayonier may petition EPD to modify the terms of this Order in the event of changed circumstances, and EPD agrees to consider such petition in good faith. Such circumstances may include, but are not limited to, significant changes in the operation of the mill and the availability of new, improved or more cost-effective color reducing technologies or methods that may complement or replace the Color Reduction Technologies that Rayonier is required to implement herein.

9. Permit Application Modification/Permit Incorporation. If, upon execution of this Order, Rayonier's Permit has not been renewed, Rayonier shall modify its Permit application to incorporate paragraphs 1 through 6 of this Order (hereinafter the "Key Provisions"). The renewal Permit shall include the Key Provisions that are to be implemented within the term of such renewal Permit. Any remaining Key Provisions with completion dates beyond the term of the renewal Permit shall be incorporated into any subsequent Permit(s).

Completing the Projects defined in Section 2.c. will require numerous phases of design and construction (hereinafter the "Interim Projects"). The Projects and the Interim Projects shall be completed in accordance with a detailed schedule to be proposed by Rayonier that shall be included in the renewal Permit. This schedule shall provide that Rayonier shall complete a Project or an Interim Project no less frequently than every nine (9) months and shall report each such completion in writing to EPD within fourteen (14) days.

Rayonier shall provide EPD with updates regarding the implementation of the Projects and Interim Projects in the semi-annual reports required under Section 2.b. Rayonier shall inform EPD of any necessary modifications to the schedule of Interim Projects in the semi-annual reports.

10. Termination of Order. This Order shall terminate the earliest of the completion of the installation of the Color Reduction Technologies, when EPD issues a renewal Permit that incorporates the final Key Provisions, or at such time EPD is prohibited by court order from incorporating any Key Provision in any subsequent Permit.

11. Captions. All headings contained herein are not to be considered in the construction or interpretation of this Agreement, as they are included for reference only.

12. Non-Admission of Liability. This Order is executed and entered solely for the purpose of resolving and disposing of the allegations set forth herein and does not constitute a finding, adjudication, or evidence of a violation of any law, rule, or regulation by Rayonier, and, by consenting to this Order, Rayonier does not admit to any factual allegation contained herein or to any violations of State laws. In addition, this Order is not intended to create and it shall not be construed or otherwise deemed to recognize or create any claim, right, liability, estoppel, or waiver of rights in favor of any third-party or parties.

13. Stipulated Penalties.

a. The failure of Rayonier to meet the deadlines for implementing the Color Reduction Plan (as specified in Section 2 of the Order) or report submittals shall result in the following stipulated penalties:

Period of Non-Compliance	Stipulated Penalty (Plan deadline)	Stipulated Penalty (Report submittals)
1 st through 60 th day	\$1,000	\$100
61 st through 120 th day	\$2,500	\$250
121 st day and beyond	\$5,000	\$500

b. The above stipulated penalties shall not apply to the Color Limits, which shall become enforceable Permit terms. Stipulated Penalties shall apply only to the failure to complete the Projects defined in Section 2.c by the deadlines set forth in Section 2.d. They shall not apply to a failure to complete an Interim Project by the date set forth on the schedule to be included in the renewal Permit. Notwithstanding this, EPD reserves the right to pursue an enforcement action for a failure to complete or install an Interim Project every nine months unless such failure is excused under the terms of this Consent Order.

14. Effect of Order.

This Order does not waive the Director's right to take further enforcement action against Rayonier, or imply that the Director will not take such action, either for (1) violations referenced herein if Rayonier fails to fully comply with the conditions of this Order, or (2) violations not referenced herein based on any other relevant requirements of this Order, the law, rules, and permit(s).

By agreement of the parties, this Order shall have the same force and binding effect as a Final Order of the Director, and shall become final and effective immediately upon its execution by the Director. The parties further agree that this Order shall not be appealable by Rayonier, and Rayonier hereby waives its right to initiate any administrative or judicial hearing on the terms and conditions of this Order.

Unless modified or terminated by a subsequent order, or otherwise specified in writing by the Director, this Order shall be deemed satisfied and terminated upon full, complete, and timely performance of each and every condition set forth herein.

It is so ORDERED and AGREED to this 22nd day of DECEMBER 2010.

F. Allen Barnes

F. ALLEN BARNES, DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

RAYONIER PERFORMANCE FIBERS, LLC

BY:

F. Jack Perrett

NAME:

F. Jack Perrett

TITLE:

General Manager

DATE:

9/15/2010

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

CONSENT ORDER

**Rayonier Performance Fibers, LLC
Jesup, Georgia
Wayne County**

**ORDER NO. EPD-WQ-4837
Amendment 3**

WHEREAS, on March 6, 2008, Rayonier Performance Fibers, LLC ("Rayonier") and the Director of the Georgia Environmental Protection Division ("Director, EPD") entered into Consent Order No. EPD-WQ-4837 (the "Consent Order"), in which Rayonier committed to implement Color Reduction Technologies, on a timetable specified in the Consent Order; and

WHEREAS, on December 22, 2010, Rayonier and the Director, EPD, entered into Amendment 2 to the Consent Order ("Amended Consent Order"), revising the timetable for the installation of certain technology but not extending the deadlines by which Rayonier must achieve the color limits specified in the Consent Order; and

WHEREAS, on May 20, 2011, Rayonier made a decision to convert C-Mill at the facility from production of absorbent materials (a paper grade of pulp) to production of ultra high-purity cellulose specialty fibers (CSP); and

WHEREAS, the oxygen delignification bleaching system required in the Consent Order, while appropriate for color reduction in the production of absorbent materials, is not an appropriate color reduction technology for the manufacture of high-purity CSP; and

WHEREAS, Rayonier has identified alternative color reduction technologies for the C-Mill as converted to production of high-purity CSP that will achieve the color limits specified in the Amended Consent Order on the timetable specified in the Amended Consent Order.

NOW, THEREFORE, the parties hereby agree to amend the Amended Consent Order, upon the order of the Director, EPD, and with the consent of Rayonier, as follows:

1. Paragraph 1 is hereby amended by deleting subparagraph 1(b) in its entirety and substituting in lieu thereof the following:

"b. Solid-Liquid Separation Technology and Filtrate Recycling. Dissolved air flotation units, disc filters and other solid-liquid separation equipment can be used to separate pulp fines and color from screening filtrate. The clarified filtrate containing color can then be recycled to the brownstock system and ultimately burned in the recovery furnaces. Alternatively, color can be separated from the filtrate and disposed of separately. A combination of these technologies will be implemented to reduce effluent color.

i. Rayonier shall install the necessary equipment in its C mill screening operation to implement solid-liquid separation technology applied to screening filtrate to reduce effluent color.

ii. Treated filtrate will be recycled within the process."

2. Paragraph 1 is further amended by deleting subparagraph 1(d) in its entirety and substituting in lieu thereof the following:

"d. Reserved."

3. Paragraph 1 is further amended by deleting subparagraph 1(f) in its entirety and substituting in lieu thereof the following:

"f. Color Reduction Technologies. The above referenced brownstock washing improvements, solid-liquid separation of filtrate, filtrate recycling, spill recovery, operating practices and color balances (the "Color Reduction Technologies"), constitute the Facility's Best Management Practices and serve as the appropriate means to achieve compliance with the Narrative Water Quality Standards, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d)."

4. Paragraph 2 is amended by striking subparagraph 2(c) in its entirety and substituting in lieu thereof the following:

"c. As described above, the Color Reduction Technologies consist of three major process improvements and modification: (1) Solid-liquid separation technology and filtrate recycling in C mill; (2) improved brownstock washing in A mill, and (3) improved brownstock washing in B mill, each being individually referred to as a "Project" and collectively as the "Projects."

5. Paragraph 2 is further amended by striking subparagraph 2(d) in its entirety and substituting in lieu thereof the following:

"d. The Projects will be implemented in stages. The B mill brownstock washing Project shall be completed within eighteen (18) months following the effective date of this Order. The solid-liquid separation technology and filtrate recycling Project in C mill, shall be completed within sixty-three (63) months following the effective date of

this Order. The A mill brownstock washing Project and any other remaining work required by the Color Reduction Plan but not designated as one of the capital Projects shall be completed within eighty-four (84) months following the effective date of this Order. Rayonier shall demonstrate progress by providing EPD with semi-annual progress reports as described above."

6. In all other respects, all provisions of the Amended Consent Order shall remain in full force and effect. All deadlines in this Order, as in the Amended Consent Order, are based on the effective date of the original Consent Order, March 6, 2008.

7. This Order does not constitute a finding, adjudication, or evidence of a violation of any law, rule, or regulation by Rayonier, and, by consenting to this Order, Rayonier does not admit to any factual allegation contained herein or in the Amended Consent Order or to any violations of State law. In addition, this Order is not intended to create and it shall not be construed or otherwise be deemed to recognize or create any claim, right, liability, estoppel, or waiver of rights in favor of any third-party or parties.

By agreement of the parties, this Order shall have the same force and binding effect as a Final Order of the Director, and shall become final and effective immediately upon its execution by the Director. The parties further agree that this Order shall not be appealable by Rayonier, and Rayonier hereby waives its right to initiate any administrative or judicial hearing on the terms and conditions of this Order.

Unless modified or terminated by a subsequent order, or otherwise specified in writing by the director, this Order shall be deemed satisfied and terminated upon full, complete, and timely performance of each and every condition set forth herein.

It is SO ORDERED and AGREED to, this 8th day of Sept, 2011.

F. Allen Barnes

F. ALLEN BARNES, DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

RAYONIER PERFORMANCE FIBERS, LLC

BY:

Fred J. Perrett

NAME:

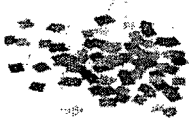
Fred J. Perrett

TITLE:

General Manager, Jesup Mill

DATE:

6/10/2011



Pamala Myers /R4/USEPA/US

06/30/2009 09:46 AM

To dominic_weatherill@dnr.state.ga.us, Karrie-Jo
Shell/R4/USEPA/US@EPA, Mark
Nuhfer/R4/USEPA/US@EPA
cc Jane_Hendricks@dnr.state.ga.us, Gene
Stanford/R4/USEPA/US@EPA
bcc

Subject GA0003620 Rayonier Facility NPDES permit

Mr. Weatherill [Dominic],

Karrie-Jo [Shell] has indicated to me that she has completed the review for this draft permit and has no further comments.

Pursuant to the MOA, please submit to EPA Region 4, a copy of the complete application, the draft permit including the full Rationale/Fact sheet, and the final permit as issued for this facility for our files. These documents may be submitted in a "PDF" electronic format, but please indicate the facility identification information in the subject line of the Email and courtesy copy (cc) Mr. Gene Stanford our documents assistant.

Thank you,

Pamala Myers
404.562.9421

Environmental Engineer/NPDES Permits, Technical Advisor
Water Pollution Control and Implementation Branch
Water Protection Division
Municipal and Industrial NPDES Section
U.S. EPA, Region 4
Atlanta, GA 30303
myers.pamala@epa.gov
404.562.8692 (fax)

OK; comments have been addressed.



Karrie-Jo Shell/R4/USEPA/US

05/20/2009 07:59 AM

To "Dominic Weatherill" <Dominic.Weatherill@dnr.state.ga.us>

cc Mark Nuhfer/R4/USEPA/US@EPA, Pamala Myers/R4/USEPA/US@EPA

bcc

Subject Re: EPA comments on the Rayonier permit, GA 0003620

I have not seen a GAEPD response to my comments.
Karrie-Jo Robinson-Shell, P.E.

"Dominic Weatherill" <Dominic.Weatherill@dnr.state.ga.us>



"Dominic Weatherill "

<Dominic.Weatherill@dnr.state.ga.us>

05/20/2009 07:49 AM

To Karrie-Jo Shell/R4/USEPA/US@EPA

cc

Subject Re: EPA comments on the Rayonier permit, GA 0003620

Karrie-Jo:

Have you recieved information from us that addresses the questions below? And if yes - is that information satisfactory?

I was not sure of the status on this.

Thanks for your help.

Dominic Weatherill, Manager
Industrial Wastewater Unit
GA Environmental Protection Division
4220 International Parkway, Suite 101
Atlanta, Georgia 30354
Phone: (404) 675-6000
Fax: (404) 362-2691
dominic_weatherill@dnr.state.ga.us

>>> <Shell.Karrie-Jo@epamail.epa.gov> 4/30/2009 1:47 pm >>>

Dominic,

EPA has two comments at this time.

1) The AOX limits on page 2 of 13 are inappropriate for determining compliance. The AOX limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

2) Outfall 004 is an internal outfall for the bleach plant. The limits are based on the BPJ of the permit writer using EPA's Background Information Document for Permit Writers: Dissolving Kraft and Dissolving Sulfite Pulp Mills, dated May 2007. The internal limit for chloroform is inappropriate for determining compliance. The limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

Below is a summary of my review:

The facility is a dissolving mill that makes dissolving kraft and market bleached kraft. The average daily flow for the mill is approximately 88.46 cfs (57.15 MGD)

The receiving stream is the Altamaha River, which has a 7Q10 of 2250 cfs (1453.5 MGD), a 1Q10 of 2200 cfs (1421.2 MGD), and an average annual of approximately 13,900 cfs (8,979.4 MGD). The Altamaha River is not listed on GA's 303d list and has no TMDLs.

The application reported the following effluent concs for POCs:

metal	outfall 001	outfall 002
arsenic	ND	ND
cadmium	ND	ND
copper	ND	ND
lead	ND	ND
nickel	ND	ND
selenium	ND	ND
Zinc	23 ug/l	47 ug/l
phenols	50 ug/l	98 ug/l
2,3,7,8-TCDD:less than 0.000003325 ug/l (ave for outfalls 001 and 002)		

Per GA's WQS regs, the following are the flows to be used in the RP analysis:

flow	Dilution Factor
1Q10 for acute	24.86
7Q10 for chronic	25.43
annual ave for 2,3,7,8-TCDD	157.1

The metals all showed no RP to exceed the applicable instream WQS. For 2,3,7,8-TCDD, the calculated effluent limit concentration is:

Human Health criteria \times DF (based on the annual average flow) = $0.0000012 \text{ ug/l} \times 157.1 = 0.00018852 \text{ ug/l}$. The existing permit limit is 0.000153 ug/l , which is more stringent than the calculated limit, so the existing limit is being retained to avoid anti-backsliding issues.

GA has no numerical WQS for color. However, GA EPD issued a Consent Order, no. EPD-WQ-4837, requiring the mill to install equipment in order to reduce the effluent color. Paragraphs 1 through 6 of the Order are incorporated in the permit by reference. Rayonier will have 96 months (with interim compliance limits) to reduce the annual average effluent color to 115% of the average of the color discharge from the immediately preceding 12 months, not to exceed 250 US tons/day. The permit also requires the mill to monitor all 17 congeners of 2,3,7,8-TCDD and furan in ambient fish tissue in the receiving waterbody.

The BOD and TSS limits remain unchanged from the current permit.

Karrie-Jo Robinson-Shell, P.E.

Permit Rationale						
ADMT Pulp / Day						
1870						
Dioxin (2,3,7,8 - TCDD)			Human Health Criteria -		0.0000012	ug/liter
Altamaha River Avg Flow			8965.5		MGD	
Plant Avg Daily Flow			57.15		MGD	
Dilution Factor:			141.08594			
Dioxin Calc'd Limit			0.0001693		ug/l	
Existing Limit is lower-			0.000153		ug/l	
Chloroform	BAT Factor					
	Grams per metric ton	Metric Tons used per day	Grams per day limit		Mass Limits	
Daily Max	6.92	1870	12940.4	Max	28.53	lbs/day
Monthly Avg	4.14	1870	7741.8	Avg	17.07	lbs/day
AOX	Entering BPlt	AOX Factors		Conversion	Mass Limits (lbs/day)	
	Unbleached	Monthly Avg	Daily Max	lbs per	Monthly	Daily
	Pulp ADMT/day	kg/MT	kg/MT	kg	Avg	Max
	1870	0.623	0.951	2.205	2569	3921

The Waste Load Allocation Sheet is attached for BOD and TSS.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through , 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002, and 003 – Process wastewater, sanitary wastes, and stormwater runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based (lbs/day)		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow (MGD)	--	--	--	--	Continuous	Recorder	Influent or Effluent
BOD ₅ *							
-- May 1 – Nov. 30	22,300	33,450	--	--	Daily	Composite	Effluent
-- Dec. 1 – Apr. 30	32,000	48,000	--	--	Daily	Composite	Effluent
TSS	42,010	77,600	--	--	Daily	Composite	Effluent
Color	--	--	--	--	Weekly	Composite	Effluent
BOD ₁₂₀	-	-	-	-	Annually	Composite	Effluent
AOX	2569	3921	--	--	Weekly	Composite	Effluent

* These limits are the total mass limits for all three outfalls combined. The mass limit scenarios are as follows.

Scenario 1 – Outfall 002 can discharge 100% of the effluent with 001 & 003 discharging 0%.

Scenario 2 – Outfall 001 can discharge a maximum of 50% of the effluent limit, 003 a maximum of 10% of the effluent limit, and 002 can discharge the remaining percentage of the effluent limit.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored daily by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All water shall be free from material related to the permittee's industrial discharge that produces turbidity, color, odor, or other objectionable conditions, which interfere with legitimate water uses.

The effluent sample location shall be defined as the discharge stream after treatment, but prior to mixing with any other waters.

Monitoring results for pollutants requiring annual analysis shall be submitted with the June Discharge Monitoring Report (DMR). Monitoring results for pollutants requiring quarterly analysis shall be submitted with the March, June, September, and December DMR.

2. During the period beginning on the effective date and lasting through 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 004 – Bleach Plant effluent (internal waste stream). ⁽⁷⁾

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based (lb/day)		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type ⁽⁵⁾	Sample Location ⁽⁶⁾
Flow (MGD)	--	--	--	--	Continuous	Recorder	Bleach Plant Effluent
TCDD ⁽⁴⁾				<ML	Monthly	Composite	Bleach Plant Effluent
TCDF ⁽⁴⁾				0.0319	Monthly	Composite	Bleach Plant Effluent
Chloroform ⁽²⁾	17.07	28.53			Weekly ⁽²⁾	Composite	Bleach Plant Effluent
Trichlorosyringol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
4,5,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,4,5-trichlorophenol ⁽³⁾	--	--	--	<ML	Monthly	Composite	Bleach Plant Effluent
2,4,6-trichlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Pentachlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent

<ML means less than the minimum level specified in §430.01(i) for the particular pollutant.

{1} The permittee shall adhere to EPA Method 1653 for these parameters.

{2} The permittee shall adhere to the approved EPA methods for chloroform, Methods 601 or 624, or Standard Methods 6210B or 6230B. In accordance with 40 CFR Part 430.02, weekly chloroform monitoring is not required if the permittee has provided certification of process changes in lieu of monitoring.

- {3} The permittee shall adhere to EPA Method 1653 for these parameters and submit a certification statement certifying that these chlorophenolic compounds are not being used as biocides.
- {4} The permittee shall adhere to EPA Method 1613 for TCDD and TCDF.
- {5} Bleach plant sampling will be conducted in accordance with EPA's established generic sampling plan described in Appendix B – Sample Collection Methods of the EPA guidance document entitled Permit Guidance Document, Pulp, Paper and Paperboard Manufacturing Point Source Category, EPA-821-B-00-003, except where exceptions are approved by the EPA. As an exception, EPD hereby approves the National Council for Air and Stream Improvement (NCASI) Special Report 98-01, Appendix C as the guidance for sample collection (full title is "NCASI Guidance on Sampling, Contracting, and Auditing Analytical Data for the Effluent Limitations Guidelines Monitoring Parameters – Special Report No. 98-01, April 1998). As a further exception for the collection of chloroform samples, EPD hereby approves the use of the second generation ISCO 6100R automated grab sampling device or other samplers capable of automating the grab sampling process, provided samples are collected according to the manual grab sampling requirements.
- {6} Bleach plant effluent is defined as "the total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof (40 CFR 430.01). Monitoring locations are to be situated after the sewers have collected all of the acid or alkaline bleaching stage discharges and before they are mixed with other mill wastewaters. An exception is chloroform sampling, in which case the acid and alkaline monitoring locations are separate and should be at the point as close as possible to where bleach plant is discharged from process equipment.
- {7} Sampling is not required if the bleach plant is not operating or if the bleach plant operates for less than 48 consecutive hours during the monitoring period.

B. SCHEDULE OF COMPLIANCE

- 1. The Permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

See Special Conditions on Page 11 of this document.
- 2. No later than 14 calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

- 1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Coastal District Office
1 Conservation Way
Brunswick, Georgia 31520-8687

All instances of noncompliance not reported under Part I. B. and C. and Part II. A. shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.
- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentrations made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources, which can reasonably be

expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- h. For the purpose of this permit, an annual average is based on a rolling average, not on a calendar year average.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR Part 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- b. The dates of the analyses, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by

imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 µg/l, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 µg/l for acrolein and acrylonitrile, 500 µg/l for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 µg/l, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

- a. A description of the discharge and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and
2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

b. Any diversion or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA)

and the Resource Conservation and Recovery Act (RCRA). For land application of non-hazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of non-hazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgment that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and
- c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.

5. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) of the Federal Clean Water Act for toxic pollutants, which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas, in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Paragraph 1 through 6 of Consent Order EPD-WQ-4837 (the Order) are hereby incorporated by reference into this permit. Rayonier shall install the equipment, perform the color balance, and meet all other obligations contained in the Order, all in accordance with the compliance schedule contained in the Order subject only to the force majeure and change in condition provisions of the Order. Rayonier shall have 12 months to sample final mill effluent in addition to the 84 months contained in the compliance schedule for completion of all equipment installation, at the end of which it will propose applicable BAT effluent limits for chloroform, chlorinated phenolics, TCDD

and TCDF for EPD's approval. The color limit timeline is given below. Any modifications to the Order and color limit timeline are hereby incorporated into this permit.

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 63 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

2. The permittee shall monitor all seventeen congeners of dioxin (2,3,7,8-TCDD) and furan (2,3,7,8-TCDF) in ambient fish fillet tissue in the facility's receiving stream. The dioxin monitoring program shall be conducted in accordance with the Study Plan To Conduct Dioxin Monitoring In Fish Tissue From The Vicinity Of Five Georgia Bleached Kraft Mills, March 31, 1989. The sampling/testing program shall be conducted and the report submitted to the Director. The intent is to have this program repeated every three years.
3. The permittee shall have a certified operator in responsible charge of the facility in accordance with Georgia State Board Of Examiners For Certification of Water And Wastewater Treatment Plant Operators And Laboratory Analysts Rule 43-51-6.(b).

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The Permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with chapter 391-3-6-.03(5) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life. If toxicity is suspected in the effluent, the EPD may require the Permittee to perform any of the following actions:

- a. Acute biomonitoring tests;
- b. Chronic biomonitoring tests;
- c. Stream studies;
- d. Priority pollutant analyses;
- e. Toxicity reduction evaluations (TRE); or
- f. Any other appropriate study.

The EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by the EPD, the critical concentration used to determine toxicity in bio-monitoring tests will be the effluent in-stream wastewater concentration (IWC) based on the representative plant flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 10% of the test organisms (LC10) if the test is for acute toxicity, and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity. The Permittee must eliminate effluent toxicity and supply the EPD with data and evidence to confirm toxicity elimination.

PERMIT NO. GA0003620

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the State Act; the Federal Water Pollution Control Act, as amended (33 U.S. C. 1251 et seq.), hereinafter called the Federal Act; and the Rules and Regulations promulgated pursuant to each of these Acts,

**Rayonier Performance Fibers LLC
Post Office Box 2070
Jesup, Georgia 31598**

is authorized to discharge from a facility located at

**4470 Savannah Highway
Jesup, Wayne County, Georgia
Latitude 31 deg. 39 min. 04 sec. Longitude 81 deg. 49 min. 06 sec.**

to receiving waters

**Altamaha River
Altamaha River Basin**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II and III hereof.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Signed this st day of 2009.



Director,
Environmental Protection Division

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning on the effective date and lasting through , 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002, and 003 – Process wastewater, sanitary wastes, and stormwater runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based (lbs/day)		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow (MGD)	--	--	--	--	Continuous	Recorder	Influent or Effluent
BOD ₅ *							
-- May 1 – Nov. 30	22,300	33,450	--	--	Daily	Composite	Effluent
-- Dec. 1 – Apr. 30	32,000	48,000	--	--	Daily	Composite	Effluent
TSS	42,010	77,600	--	--	Daily	Composite	Effluent
Color	--	--	--	--	Weekly	Composite	Effluent
BOD ₁₂₀					Annually	Composite	Effluent
AOX (kg/1000 kg)	0.623	0.9512	--	--	Weekly	Composite	Effluent

* These limits are the total mass limits for all three outfalls combined. The mass limit scenarios are as follows.

Scenario 1 – Outfall 002 can discharge 100% of the effluent with 001 & 003 discharging 0%.

Scenario 2 – Outfall 001 can discharge a maximum of 50% of the effluent limit, 003 a maximum of 10% of the effluent limit, and 002 can discharge the remaining percentage of the effluent limit.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored daily by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All water shall be free from material related to the permittee's industrial discharge that produces turbidity, color, odor, or other objectionable conditions, which interfere with legitimate water uses.

The effluent sample location shall be defined as the discharge stream after treatment, but prior to mixing with any other waters.

Monitoring results for pollutants requiring annual analysis shall be submitted with the June Discharge Monitoring Report (DMR). Monitoring results for pollutants requiring quarterly analysis shall be submitted with the March, June, September, and December DMR.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PART I

Page 3 of 13
Permit No. GA0003620

DRAFT

During the period beginning on the effective date and lasting through 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 004 – Bleach Plant effluent (internal waste stream).⁽⁷⁾

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type ⁽⁵⁾	Sample Location ⁽⁶⁾
Flow (MGD)	--	--	--	--	Continuous	Recorder	Bleach Plant Effluent
TCDD ⁽⁴⁾				<ML	Monthly	Composite	Bleach Plant Effluent
TCDF ⁽⁴⁾				0.0319	Monthly	Composite	Bleach Plant Effluent
Chloroform ⁽²⁾ (g/kkg)	4.14	6.92			Weekly ⁽²⁾	Composite	Bleach Plant Effluent
Trichlorosyringol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
4,5,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,4,5-trichlorophenol ⁽³⁾	--	--	--	<ML	Monthly	Composite	Bleach Plant Effluent
2,4,6-trichlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Pentachlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent

<ML means less than the minimum level specified in §430.01(i) for the particular pollutant.

{1} The permittee shall adhere to EPA Method 1653 for these parameters.

{2} The permittee shall adhere to the approved EPA methods for chloroform, Methods 601 or 624, or Standard Methods 6210B or 6230B. In accordance with 40 CFR Part 430.02, weekly chloroform monitoring is not required if the permittee has provided certification of process changes in lieu of monitoring.

- DRAFT**
- {3} The permittee shall adhere to EPA Method 1653 for these parameters and submit a certification statement certifying that these chlorophenolic compounds are not being used as biocides.
 - {4} The permittee shall adhere to EPA Method 1613 for TCDD and TCDF.
 - {5} Bleach plant sampling will be conducted in accordance with EPA's established generic sampling plan described in Appendix B – Sample Collection Methods of the EPA guidance document entitled Permit Guidance Document, Pulp, Paper and Paperboard Manufacturing Point Source Category, EPA-821-B-00-003, except where exceptions are approved by the EPA. As an exception, EPD hereby approves the National Council for Air and Stream Improvement (NCASI) Special Report 98-01, Appendix C as the guidance for sample collection (full title is "NCASI Guidance on Sampling, Contracting, and Auditing Analytical Data for the Effluent Limitations Guidelines Monitoring Parameters – Special Report No. 98-01, April 1998). As a further exception for the collection of chloroform samples, EPD hereby approves the use of the second generation ISCO 6100R automated grab sampling device or other samplers capable of automating the grab sampling process, provided samples are collected according to the manual grab sampling requirements.
 - {6} Bleach plant effluent is defined as "the total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof (40 CFR 430.01). Monitoring locations are to be situated after the sewers have collected all of the acid or alkaline bleaching stage discharges and before they are mixed with other mill wastewaters. An exception is chloroform sampling, in which case the acid and alkaline monitoring locations are separate and should be at the point as close as possible to where bleach plant is discharged from process equipment.
 - {7} Sampling is not required if the bleach plant is not operating or if the bleach plant operates for less than 48 consecutive hours during the monitoring period.

B. SCHEDULE OF COMPLIANCE

- 1. The Permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

See Special Conditions on Page 11 of this document.
- 2. No later than 14 calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

- 1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Coastal District Office
1 Conservation Way
Brunswick, Georgia 31520-8687

All instances of noncompliance not reported under Part I. B. and C. and Part II. A. shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.
- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentrations made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources, which can reasonably be

expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- h. For the purpose of this permit, an annual average is based on a rolling average, not on a calendar year average.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR Part 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- b. The dates of the analyses, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by

imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 $\mu\text{g/l}$, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 $\mu\text{g/l}$ for acrolein and acrylonitrile, 500 $\mu\text{g/l}$ for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 $\mu\text{g/l}$, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

- a. A description of the discharge and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and
2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

b. Any diversion or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA)

and the Resource Conservation and Recovery Act (RCRA). For land application of non-hazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of non-hazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgment that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and
- c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.

5. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) of the Federal Clean Water Act for toxic pollutants, which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas, in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Paragraph 1 through 6 of Consent Order EPD-WQ-4837 (the Order) are hereby incorporated by reference into this permit. Rayonier shall install the equipment, perform the color balance, and meet all other obligations contained in the Order, all in accordance with the compliance schedule contained in the Order subject only to the force majeure and change in condition provisions of the Order. Rayonier shall have 12 months to sample final mill effluent in addition to the 84 months contained in the compliance schedule for completion of all equipment installation, at the end of which it will propose applicable BAT effluent limits for chloroform, chlorinated phenolics, TCDD

and TCDF for EPD's approval. The color limit timeline is given below. Any modifications to the Order and color limit timeline are hereby incorporated into this permit.

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 63 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

2. The permittee shall monitor all seventeen congeners of dioxin (2,3,7,8-TCDD) and furan (2,3,7,8-TCDF) in ambient fish fillet tissue in the facility's receiving stream. The dioxin monitoring program shall be conducted in accordance with the Study Plan To Conduct Dioxin Monitoring In Fish Tissue From The Vicinity Of Five Georgia Bleached Kraft Mills, March 31, 1989. The sampling/testing program shall be conducted and the report submitted to the Director. The intent is to have this program repeated every three years.
3. The permittee shall have a certified operator in responsible charge of the facility in accordance with Georgia State Board Of Examiners For Certification of Water And Wastewater Treatment Plant Operators And Laboratory Analysts Rule 43-51-6.(b).

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The Permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with chapter 391-3-6-.03(5) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life. If toxicity is suspected in the effluent, the EPD may require the Permittee to perform any of the following actions:

- a. Acute biomonitoring tests;
- b. Chronic biomonitoring tests;
- c. Stream studies;
- d. Priority pollutant analyses;
- e. Toxicity reduction evaluations (TRE); or
- f. Any other appropriate study.

The EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by the EPD, the critical concentration used to determine toxicity in bio-monitoring tests will be the effluent in-stream wastewater concentration (IWC) based on the representative plant flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 10% of the test organisms (LC10) if the test is for acute toxicity, and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity. The Permittee must eliminate effluent toxicity and supply the EPD with data and evidence to confirm toxicity elimination.

§ 430.01 General definitions.

In addition to the definitions set forth in 40 CFR part 401 and 40 CFR 403.3, the following definitions apply to this part:

- (a) *Adsorbable organic halides (AOX)*. A bulk parameter that measures the total mass of chlorinated organic matter in water and wastewater.
- (b) *Annual average*. The mean concentration, mass loading or production-normalized mass loading of a pollutant over a period of 365 consecutive days (or such other period of time determined by the permitting authority to be sufficiently long to encompass expected variability of the concentration, mass loading, or production-normalized mass loading at the relevant point of measurement).
- (c) *Bleach plant*. All process equipment used for bleaching beginning with the first application of bleaching agents (e.g., chlorine, chlorine dioxide, ozone, sodium or calcium hypochlorite, or peroxide), each subsequent extraction stage, and each subsequent stage where bleaching agents are applied to the pulp. For mills in subpart E of this part producing specialty grades of pulp, the bleach plant includes process equipment used for the hydrolysis or extraction stages prior to the first application of bleaching agents. Process equipment used for oxygen delignification prior to the application of bleaching agents is not part of the bleach plant.
- (d) *Bleach plant effluent*. The total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof.
- (e) *Chemical oxygen demand (COD)*. A bulk parameter that measures the oxygen-consuming capacity of organic and inorganic matter present in water or wastewater. It is expressed as the amount of oxygen consumed from a chemical oxidant in a specific test.
- (f) *Elemental chlorine-free (ECF)*. Any process for bleaching pulps in the absence of elemental chlorine and hypochlorite that uses exclusively chlorine dioxide as the only chlorine-containing bleaching agent.
- (g) *End of the pipe*. The point at which final mill effluent is discharged to waters of the United States or introduced to a POTW.
- (h) *Fiber line*. A series of operations employed to convert wood or other fibrous raw material into pulp. If the final product is bleached pulp, the fiber line encompasses pulping, de-knotting, brownstock washing, pulp screening, centrifugal cleaning, and multiple bleaching and washing stages.
- (i) *Minimum level (ML)*. The level at which the analytical system gives recognizable signals and an acceptable calibration point. The following minimum levels apply to pollutants in this part:

Pollutant	Method	Minimum level
2,3,7,8-TCDD	1613	10 pg/L ^a
2,3,7,8-TCDF	1613	10 pg/L ^a
Trichlorosyringol	1653	2.5 ug/L ^b
3,4,5-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,6-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,5-Trichloroguaiacol	1653	2.5 ug/L ^b
3,4,6-Trichloroguaiacol	1653	2.5 ug/L ^b
4,5,6-Trichloroguaiacol	1653	2.5 ug/L ^b
2,4,5-Trichlorophenol	1653	2.5 ug/L ^b
2,4,6-Trichlorophenol	1653	2.5 ug/L ^b
Tetrachlorocatechol	1653	5.0 ug/L ^b
Tetrachloroguaiacol	1653	5.0 ug/L ^b
2,3,4,6-Tetrachlorophenol	1653	2.5 ug/L ^b
Pentachlorophenol	1653	5.0 ug/L ^b
AOX	1650	20 ug/L ^b

^aPicograms per liter.

^bMicrograms per liter.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
4244 International Parkway, Suite 110
Atlanta, Georgia 30354

FACT SHEET

APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
TO WATERS OF THE STATE OF GEORGIA

Application No. GA0003620

Date March 31, 2009

1. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant

Rayonier Performance Fibers, LLC
P.O. Box 2070
4470 Savannah Highway
Jesup, Georgia 31598

b. Description of Applicant's Operation

Pulp and Paper Mill, produces market bleach kraft and dissolved kraft.

c. Production Capacity of Facility

1819 A.D. tons/day

d. Applicant's Receiving Waters

Altamaha River

A map showing the location of the discharge is located in the application.

e. Description of Existing Pollution Abatement Facilities

Screening, Primary Clarification, Nutrient Addition, and Aeration Basin.

f. Description of Discharges (as reported by applicant)

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Long Term Average Flow	-	57.15 mgd
Average Winter Temperature	-	25 °C
Average Summer Temperature	-	32 °C
pH Range (std. units)	-	7.6 – 8.4

Pollutants which are present in significant quantities or which are subject to effluent limitation are as follows:

<u>Effluent Characteristic</u>	<u>Reported Value</u>
BOD ₅	62 mg/l
Total Suspended Solids (TSS)	88 mg/l
Fecal Coliform (highest 30-day avg)	2 CFU/100ml

2. PROPOSED EFFLUENT LIMITATIONS

Note: Effluent limits remain unchanged for BOD₅, TSS, and dioxin from the previous permit.

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6 - 9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
BOD ₅	
May 1 – November 30	22,300 lbs/day Avg. Daily 33,450 lbs/day Max. Daily
December 1- April 30	32,000 lbs/day Avg. Daily 48,000 lbs/day Max. Daily
TSS	42,010 lbs/day Avg. Daily 77,600 lbs/day Avg. Daily
Dioxin (2,3,7,8-TCDD)	0.000153 µg/l

Serial 003 - Storm Water Runoff

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6-9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
TSS	Only 10% of Effluent limit

Note: Discharge scenarios are given in Page 2 of the permit, following the table of limitations.

Serial 004 – Bleach Plant Discharge (Internal Waste Stream)

Chloroform	12.54 lbs/day Max. Daily 7.502 lbs/day Avg. Daily
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Various Compounds listed with limits below the minimum detection levels (ML).

3. MONITORING REQUIREMENTS

The applicant will be required to monitor regularly for flow and those parameters limited in Section 2 above with sufficient frequency to ensure compliance with the permit conditions. Frequency, methods of sampling, and reporting dates will be specified in the final permit.

4. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

N/A

5. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

See Part III, Special Requirements of NPDES permit, attached.

6. WATER QUALITY STANDARDS AND EFFLUENT STANDARDS APPLIED TO THE DISCHARGE

Code of Federal Regulations (Title 40 CFR Part 430 Subpart A – "Dissolving Kraft Subcategory and Subpart B- "Bleached Papergrade Kraft and Soda Subcategory") Effluent Guidelines

The Altamaha River is classified as fishing. The effluent BOD₅ limitations were derived to meet this classification.

Limitations for dioxin (2,3,7,8-TCDD) have been imposed on the discharge utilizing the 10⁻⁵ human health risk level concentration at average stream flow conditions. These levels are established in Chapter 391-3-6-.03(5) of the Georgia Rules and Regulations for Water Quality Control (Revised July 2000). The existing permit limit for dioxin was more stringent than the computed value of 0.00017 µg/l based upon stream calculations.

7. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

a. Comment Period

The Georgia Environmental Protection Division (EPD) proposes to issue an NPDES permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

Interested persons are invited to submit written comments on the permit application or on EPD's proposed determinations to the following address:

Georgia Environmental Protection Division
4220 International Parkway
Suite 101
Atlanta, Georgia 30354

All comments received prior to expiration of the public notice period will be considered in the formulation of final determinations with regard to this application.

b. Public Hearings

Any applicant, affected state or interstate agency, the Regional Administrator of the U. S. Environmental Protection Agency (EPA) or any other interested agency, person or group of persons may request a public hearing with respect to an NPDES permit application if such request is filed within thirty (30) days following the date of the public notice for such application. Such request must indicate the interest of the party filing the request, the reasons why a hearing is requested, and those specific portions of the application or other NPDES form or information to be considered at the public hearing. The Director shall hold a hearing if he determines that there is sufficient public interest in holding such a hearing. If a public hearing is held, notice of same shall be provided at least thirty (30) days in advance of the hearing date.

In the event that a public hearing is held, both oral and written comments will be accepted; however, for the accuracy of the record, written comments are encouraged. The Director or his designee reserves the right to fix reasonable limits on the time allowed for oral statements and such other procedural requirements as he deems appropriate.

Following a public hearing, the Director, unless he should decide to deny the permit, may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue the permit. Notice of issuance or denial will be circulated to those persons or groups who participated in the hearing; and to those persons or groups who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of the application for permit.

c. Contested Hearings

Any person who is aggrieved or adversely affected by the issuance or denial of a permit by the Director of EPD may petition the Director for a hearing if such petition is filed in the office of the Director within thirty (30) days from the date of notice of such permit issuance or denial. Such hearing shall be held in accordance with the EPD Rules, Water Quality Control, subparagraph 391-3-6-01.

Petitions for a contested hearing must include the following:

1. The name and address of the petitioner;
2. The grounds under which petitioner alleges to be aggrieved or adversely affected by the issuance or denial of a permit;
3. The reason or reasons why petitioner takes issue with the action of the Director;
4. All other matters asserted by petitioner which are relevant to the action in question.

d. Issuance of the Permit When No Public Hearing is Held

If no public hearing is held, and, after review of the written comments received, the Director determines that a permit should be issued and that his determinations as set forth in the proposed permit are substantially unchanged, the permit will be issued and will become final in the absence of a request for a Contested Hearing. Notice of issuance or denial will be circulated to those persons who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of such proposed permit.

If no public hearing is held, but the Director determines, after a review of the written comments received, that a permit should be issued but that substantial changes in the proposed permit are warranted, public notice of the revised determinations will be given and written comments accepted in the same manner as the initial notice of application was given and written comments accepted pursuant to EPD Rules, Water Quality Control, subparagraph 391-3-6-.06(7)(b). The Director shall provide an opportunity for public hearing on the revised determinations. Such opportunity for public hearing and the issuance or denial of a permit thereafter shall be in accordance with the procedures as are set forth above.

Permit Rationale						
			Percent Dissolving	Percent Bleached	Dissolving ADT per Day	Bleached ADT per Day
		ADT / Day	Kraft	Kraft		
		1819.5	50.2%	49.8%	913.389	906.111
Dioxin (2,3,7,8 - TCDD)			Human Health Criteria -		0.0000012	ug/liter
Altamaha River Avg Flow			8965.5	MGD		
Plant Avg Daily Flow			57.15	MGD		
Dilution Factor:			141.08594			
Dioxin Calc'd Limit			0.0001693	ug/l		
Existing Limit is lower-			0.000153	ug/l		
Chloroform			(FACTOR)			
	Pounds per kilbs	Pounds per Ton	Pounds per Ton			
	0.00692	2000	0.01384	Max	12.540576	lbs/day
	0.00414	2000	0.00828	Avg	7.5025991	lbs/day
The Waste Load Allocation Sheet is attached for BOD and TSS.						

National Pollutant Discharge Elimination System Waste Load Allocation Form

Part I: Background Information

WLA Request Type: Reissuance ☒ Expansion ☐ Relocation ☐ New Discharge ☐
 Facility Name: Rayonier Performance Fibers LLC County: Wayne WQMU: 0692
 NPDES Permit No.: GA0003620 Expiration Date: December 31, 2007 Outfall Number: 001 and 002
 Receiving Water: Altamaha River River Basin: Altamaha 10-Digit HUC: 0307010604
 Discharge Type: Domestic ☐ Industrial ☒ Both ☐ Proportion (D:I): Flow(s) Requested (MGD): 60-70 (average)
 Industrial Contributions Type(s): pulp, paper and paperboard production
 Treatment Process Description: activated sludge, extended aeration
 Additional Information: (history, special conditions, other facilities):
 Requested by: AWL Title: Program: PCEP
 Telephone: Date:

Part II: Receiving Water Information

Receiving Water: Altamaha River Designated Use Classification: Fishing
 Integrated 305(b)/303(d) List: Yes ☐ No ☒ Partial Support: ☐ Not Support: ☐ Criteria:
 Total Maximum Daily Load: Yes ☐ No ☒ Parameter(s) WLA Complies with TMDL Yes ☐ No ☐

Part III: Water Quality Model Review Information

Model Type: Uncalibrated ☐ Calibrated ☒ Verified ☐ Cannot be Modeled ☐ Model Length (mi): 110.7
 Field Data: None ☐ Fair ☐ Good ☒ Excellent ☐
 Model and Field Data Description: Steady-state dissolved oxygen Georgia DOSAG model.
 Critical Water Temperature (°C): 28.5 Drainage Area (mi²): Approx. 13600 7Q10 streamflow at discharge (cfs): Approx. 2250
 7Q10 Yield (cfs/mi²): Velocity (range fps): 0.5 - 3.2 1Q10 streamflow at discharge (cfs): Approx. 2200
 Effluent Flow Rate (cfs): 108 7Q10 IWC (%): 4.6 Mean annual streamflow at discharge (cfs): Approx. 13900
 Slope (range - fpm): 0.04 - 1.3 K1: 0.1 K3: 0.05 Escape Coef. (ft¹): 0.025 K2 (range):
 SOD: f-Ratio (BOD₅/BOD_u): 4.5 Background Hardness (mg/L as CaCO₃): 25

The predicted minimum dissolved oxygen concentration is 5.02 mg/L, occurring 40 miles downstream from the discharge.
 The modeling parameters and results cited above are from the modeling analysis for the original waste load allocation. No review of, or revisions to, the original modeling analysis or the waste load allocation were made.

Part IV: Recommended Permit Limitations and Conditions (lbs/day as a daily average except as noted)

Rationale: Same as current ☒ Revised ☐ New ☐ Note that monitoring of total phosphorus is recommended.
 Location: Altamaha River

Period	Effluent Flow Rate (MGD)	BOD ₅	TSS	pH (std. units)	Total Phosphorus
May - November	Monitor	22,300	42,010	6.0 - 9.0	Monitor
December - April	Monitor	32,000	42,010	6.0 - 9.0	Monitor

RECEIVED
OCT 15 2008
GEORGIA BPD WATERSHED PROTECTION
ENFORCEMENT, COMPLIANCE & ENFORCEMENT

Additional Comments:

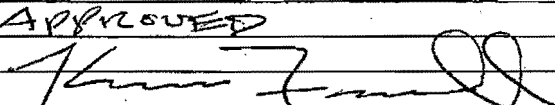
*The limits are for 001 and 002 combined.

Priority pollutant permit limits and aquatic toxicity testing requirements are to be determined by PCEP.

Current permit requirements include a 120-day long-term biochemical oxygen demand (BOD₁₂₀) test once a year, monitoring of color (weekly), and in-stream monitoring of BOD₅, dissolved oxygen, pH, and water temperature twice a month from May through November.

Prepared by: Larry Guerra LCG Date: 10/07/2008 Reviewed by: Andy Kao HAK Date: 10/07/08

Part V: Assistant Branch Chief Comments

APPROVED
 Kevin Farrell  Date: 10/14/08

6/1/09
KJ - have
you heard
from
GA?



"Dominic Weatherill"
<Dominic.Weatherill@dnr.state.ga.us>

05/20/2009 08:15 AM

To Karrie-Jo Shell/R4/USEPA/US@EPA
cc Pamala Myers/R4/USEPA/US@EPA, Mark
Nuhfer/R4/USEPA/US@EPA
bcc
Subject Re: EPA comments on the Rayonier permit, GA 0003620

Okay.

I will touch base with Alan Leake and have him provide the information/
respond to your comments.

Dominic Weatherill, Manager
Industrial Wastewater Unit
GA Environmental Protection Division
4220 International Parkway, Suite 101
Atlanta, Georgia 30354
Phone: (404) 675-6000
Fax: (404) 362-2691
dominic_weatherill@dnr.state.ga.us

>>> <Shell.Karrie-Jo@epamail.epa.gov> 5/20/2009 7:59 am >>>
I have not seen a GAEPD response to my comments.
Karrie-Jo Robinson-Shell, P.E.

"Dominic
Weatherill"
<Dominic.Weather
ill@dnr.state.ga
.us>

05/20/2009 07:49
AM

To
Karrie-Jo Shell/R4/USEPA/US@EPA
cc

Subject
Re: EPA comments on the Rayonier
permit, GA 0003620

Karrie-Jo:

Have you recieved information from us that addresses the questions
below? And if yes - is that information satisfactory?

I was not sure of the status on this.

Thanks for your help.

Dominic Weatherill, Manager
Industrial Wastewater Unit
GA Environmental Protection Division
4220 International Parkway, Suite 101
Atlanta, Georgia 30354
Phone: (404) 675-6000
Fax: (404) 362-2691

dominic_weatherill@dnr.state.ga.us

>>> <Shell.Karrie-Jo@epamail.epa.gov> 4/30/2009 1:47 pm >>>

Dominic,

EPA has two comments at this time.

1) The AOX limits on page 2 of 13 are inappropriate for determining compliance. The AOX limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

2) Outfall 004 is an internal outfall for the bleach plant. The limits are based on the BPJ of the permit writer using EPA's Background Information Document for Permit Writers: Dissolving Kraft and Dissolving Sulfite Pulp Mills, dated May 2007. The internal limit for chloroform is inappropriate for determining compliance. The limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

Below is a summary of my review:

The facility is a dissolving mill that makes dissolving kraft and market bleached kraft. The average daily flow for the mill is approximately 88.46 cfs (57.15 MGD)

The receiving stream is the Altamaha River, which has a 7Q10 of 2250 cfs (1453.5 MGD), a 1Q10 of 2200 cfs (1421.2 MGD), and an average annual of approximately 13,900 cfs (8,979.4 MGD). The Altamaha River is not listed on GA's 303d list and has no TMDLs.

The application reported the following effluent concs for POCs:

metal	outfall 001	outfall 002
arsenic	ND	ND
cadmium	ND	ND
copper	ND	ND
lead	ND	ND
nickel	ND	ND
selenium	ND	ND
Zinc	23 ug/l	47 ug/l
phenols	50 ug/l	98 ug/l
2,3,7,8-TCDD:	less than 0.000003325 ug/l (ave for outfalls 001 and 002)	

Per GA's WQS regs, the following are the flows to be used in the RP analysis:

flow	Dilution Factor
1Q10 for acute	24.86
7Q10 for chronic	25.43
annual ave for 2,3,7,8-TCDD	157.1

The metals all showed no RP to exceed the applicable instream WQS. For 2,3,7,8-TCDD, the calculated effluent limit conc is:

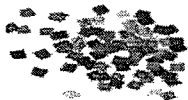
Human Health criteria x DF (based on the annual ave flow) = 0.0000012 ug/l x 157.1 = 0.00018852 ug/l. The existing permit limit is 0.000153 ug/l, which is more stringent than the calculated limit, so the existing limit is being retained to avoid anti-backsliding issues.

GA has no numerical WQS for color. However, GA EPD issued a Consent Order, no. EPD-WQ-4837, requiring the mill to install equipment in order to reduce the effluent color. Paragraphs 1 through 6 of the Order are incorporated in the permit by reference. Rayonier will have 96 months (with interim compliance limits) to reduce the annual average effluent

color 115% of the average of the color discharge from the immediately proceeding 12 months, not to exceed 250 US tons/day. The permit also requires the mill to monitor all 17 congeners of 2,3,7,8-TCDD and furan in ambient fish tissue in the receiving waterbody.

The BOD and TSS limits remain unchanged from the current permit.

Karrie-Jo Robinson-Shell, P.E.



Karrie-Jo
Shell/R4/USEPA/US
04/30/2009 01:47 PM

To: dominic_weatherill@dnr.state.ga.us
cc: Pamala Myers/R4/USEPA/US@EPA, Mark
Nuhfer/R4/USEPA/US@EPA, Karrie-Jo
Shell/R4/USEPA/US@EPA
bcc:

Subject: EPA comments on the Rayonier permit, GA 0003620

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The facility is a dissolving mill that makes dissolving kraft and market bleached kraft. The average daily flow for the mill is approximately 88.46 cfs (57.15 MGD). The receiving stream is the Altamaha River, which has a 7Q10 of 2250 cfs (1453.5 MGD), a 1Q10 of 2200 cfs (1421.2 MGD), and an average annual of approximately 13,900 cfs (8,979.4 MGD). The Altamaha River is not listed on GA's 303d list and has no TMDLs.

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The BOD and TSS limits remain unchanged from the current permit.

Karrie-Jo Robinson-Shell, P.E.

NPDES PERMIT REVIEW

ROUTING Log into database by Administrative Staff (Within 2 days of receipt)	STATE: <u>GA</u>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor Primary <input type="checkbox"/> Modification <input type="checkbox"/> Revised permit
	NPDES NUMBER: <u>0003620</u>	
	FACILITY NAME: <u>Rayonier Jesup Mill</u>	
	DRAFT REC'D: <u>4/14/2009</u>	FINAL REC'D: _____
ENFORCEMENT coordination needed? Y / <u>N</u> (If yes, make copy and send to enforcement)		
Date sent _____ Date due _____		

Give to Permit Reviewer: PAM MYERS 5/11/09*

Review due date: _____	
Initial Review by Permit Reviewer to determine whether other staff needs to review. Ensure permit or copy is sent. (Within 5 days of receipt)	Is permit one of these three types? Y / N <input checked="" type="checkbox"/> CAFO - route to Sam Sampath <input checked="" type="checkbox"/> Pulp & Paper - route to Karrie Jo Shell <u>4/30/09</u> <input type="checkbox"/> Power Plant - route to Karrie Jo Shell Date sent <u>*5/11/09</u> Date due <u>6/05/09</u>
	TMDL review needed? Y / N (To TMDL coordinator)
	New or expanded with DO, BOD, CBOD WLA? Y / N (To Virginia Buff)
	Date sent _____ Date due _____

Is this on the 303(d) list? Y / N List pollutant(s) of concern: _____

WET review needed? Y / N If yes, complete & attach WET Permitting Checklist

Permit Reviewer to complete Overview Check Sheet and prepare as needed: okay, comments, corrections (discuss with supervisor as needed). Place all documentation in file and log into database.

* K-I (perreviewed) draft sent. Comments are in data base on G:\drive and copies in file!

received email on 4/14/09

GA0003620

PERMIT NO. GA0003620

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the State Act; the Federal Water Pollution Control Act, as amended (33 U.S. C. 1251 et seq.), hereinafter called the Federal Act; and the Rules and Regulations promulgated pursuant to each of these Acts,

**Rayonier Performance Fibers LLC
Post Office Box 2070
Jesup, Georgia 31598**

is authorized to discharge from a facility located at

**4470 Savannah Highway
Jesup, Wayne County, Georgia
Latitude 31 deg. 39 min. 04 sec. Longitude 81 deg. 49 min. 06 sec.**

to receiving waters

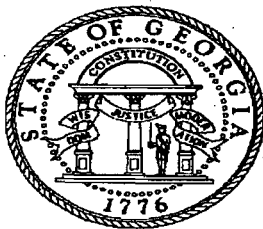
**Altamaha River
Altamaha River Basin**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II and III hereof.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Signed this st day of 2009.



Director,
Environmental Protection Division

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Page 2 of 13
Permit No. GA0003620

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through , 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002, and 003 – Process wastewater, sanitary wastes, and stormwater runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based (lbs/day)		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow (MGD)	--	--	--	--	Continuous	Recorder	Influent or Effluent
BOD ₅ *							
-- May 1 – Nov. 30	22,300	33,450	--	--	Daily	Composite	Effluent
-- Dec. 1 – Apr. 30	32,000	48,000	--	--	Daily	Composite	Effluent
TSS	42,010	77,600	--	--	Daily	Composite	Effluent
Color	--	--	--	--	Weekly	Composite	Effluent
BOD ₁₂₀					Annually	Composite	Effluent
AOX (kg/1000 kg)	0.623	0.9512	--	--	Weekly	Composite	Effluent

* These limits are the total mass limits for all three outfalls combined. The mass limit scenarios are as follows.

Scenario 1 – Outfall 002 can discharge 100% of the effluent with 001 & 003 discharging 0%.

Scenario 2 – Outfall 001 can discharge a maximum of 50% of the effluent limit, 003 a maximum of 10% of the effluent limit, and 002 can discharge the remaining percentage of the effluent limit.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored daily by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All water shall be free from material related to the permittee's industrial discharge that produces turbidity, color, odor, or other objectionable conditions, which interfere with legitimate water uses.

The effluent sample location shall be defined as the discharge stream after treatment, but prior to mixing with any other waters.

Monitoring results for pollutants requiring annual analysis shall be submitted with the June Discharge Monitoring Report (DMR). Monitoring results for pollutants requiring quarterly analysis shall be submitted with the March, June, September, and December DMR.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PART I

Page 3 of 13
Permit No. GA0003620

DRAFT

During the period beginning on the effective date and lasting through 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 004 – Bleach Plant effluent (internal waste stream). ⁽⁷⁾

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type ⁽⁵⁾	Sample Location ⁽⁶⁾
Flow (MGD)	--	--	--	--	Continuous	Recorder	Bleach Plant Effluent
TCDD ⁽⁴⁾				<ML	Monthly	Composite	Bleach Plant Effluent
TCDF ⁽⁴⁾				0.0319	Monthly	Composite	Bleach Plant Effluent
Chloroform ⁽²⁾ (g/kg)	4.14	6.92			Weekly ⁽²⁾	Composite	Bleach Plant Effluent
Trichlorosyringol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
4,5,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,4,5-trichlorophenol ⁽³⁾	--	--	--	<ML	Monthly	Composite	Bleach Plant Effluent
2,4,6-trichlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Pentachlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent

<ML means less than the minimum level specified in §430.01(i) for the particular pollutant.

{1} The permittee shall adhere to EPA Method 1653 for these parameters.

{2} The permittee shall adhere to the approved EPA methods for chloroform, Methods 601 or 624, or Standard Methods 6210B or 6230B. In accordance with 40 CFR Part 430.02, weekly chloroform monitoring is not required if the permittee has provided certification of process changes in lieu of monitoring.

- DRAFT**
- {3} The permittee shall adhere to EPA Method 1653 for these parameters and submit a certification statement certifying that these chlorophenolic compounds are not being used as biocides.
 - {4} The permittee shall adhere to EPA Method 1613 for TCDD and TCDF.
 - {5} Bleach plant sampling will be conducted in accordance with EPA's established generic sampling plan described in Appendix B – Sample Collection Methods of the EPA guidance document entitled Permit Guidance Document, Pulp, Paper and Paperboard Manufacturing Point Source Category, EPA-821-B-00-003, except where exceptions are approved by the EPA. As an exception, EPD hereby approves the National Council for Air and Stream Improvement (NCASI) Special Report 98-01, Appendix C as the guidance for sample collection (full title is "NCASI Guidance on Sampling, Contracting, and Auditing Analytical Data for the Effluent Limitations Guidelines Monitoring Parameters – Special Report No. 98-01, April 1998). As a further exception for the collection of chloroform samples, EPD hereby approves the use of the second generation ISCO 6100R automated grab sampling device or other samplers capable of automating the grab sampling process, provided samples are collected according to the manual grab sampling requirements.
 - {6} Bleach plant effluent is defined as "the total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof (40 CFR 430.01). Monitoring locations are to be situated after the sewers have collected all of the acid or alkaline bleaching stage discharges and before they are mixed with other mill wastewaters. An exception is chloroform sampling, in which case the acid and alkaline monitoring locations are separate and should be at the point as close as possible to where bleach plant is discharged from process equipment.
 - {7} Sampling is not required if the bleach plant is not operating or if the bleach plant operates for less than 48 consecutive hours during the monitoring period.

B. SCHEDULE OF COMPLIANCE

- 1. The Permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

See Special Conditions on Page 11 of this document.
- 2. No later than 14 calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

- 1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Coastal District Office
1 Conservation Way
Brunswick, Georgia 31520-8687

All instances of noncompliance not reported under Part I. B. and C. and Part II. A. shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.
- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentrations made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources, which can reasonably be

expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- h. For the purpose of this permit, an annual average is based on a rolling average, not on a calendar year average.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR Part 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- b. The dates of the analyses, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by

imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 $\mu\text{g/l}$, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 $\mu\text{g/l}$ for acrolein and acrylonitrile, 500 $\mu\text{g/l}$ for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 $\mu\text{g/l}$, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

- a. A description of the discharge and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

5. Bypassing

- a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and
2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

- b. Any diversion or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA)

and the Resource Conservation and Recovery Act (RCRA). For land application of non-hazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of non-hazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgment that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and
- c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.

5. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) of the Federal Clean Water Act for toxic pollutants, which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas, in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

1. Paragraph 1 through 6 of Consent Order EPD-WQ-4837 (the Order) are hereby incorporated by reference into this permit. Rayonier shall install the equipment, perform the color balance, and meet all other obligations contained in the Order, all in accordance with the compliance schedule contained in the Order subject only to the force majeure and change in condition provisions of the Order. Rayonier shall have 12 months to sample final mill effluent in addition to the 84 months contained in the compliance schedule for completion of all equipment installation, at the end of which it will propose applicable BAT effluent limits for chloroform, chlorinated phenolics, TCDD

and TCDF for EPD's approval. The color limit timeline is given below. Any modifications to the Order and color limit timeline are hereby incorporated into this permit.

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 63 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

2. The permittee shall monitor all seventeen congeners of dioxin (2,3,7,8-TCDD) and furan (2,3,7,8-TCDF) in ambient fish fillet tissue in the facility's receiving stream. The dioxin monitoring program shall be conducted in accordance with the Study Plan To Conduct Dioxin Monitoring In Fish Tissue From The Vicinity Of Five Georgia Bleached Kraft Mills, March 31, 1989. The sampling/testing program shall be conducted and the report submitted to the Director. The intent is to have this program repeated every three years.
3. The permittee shall have a certified operator in responsible charge of the facility in accordance with Georgia State Board Of Examiners For Certification of Water And Wastewater Treatment Plant Operators And Laboratory Analysts Rule 43-51-6.(b).

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The Permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with chapter 391-3-6-.03(5) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life. If toxicity is suspected in the effluent, the EPD may require the Permittee to perform any of the following actions:

- a. Acute biomonitoring tests;
- b. Chronic biomonitoring tests;
- c. Stream studies;
- d. Priority pollutant analyses;
- e. Toxicity reduction evaluations (TRE); or
- f. Any other appropriate study.

The EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by the EPD, the critical concentration used to determine toxicity in bio-monitoring tests will be the effluent in-stream wastewater concentration (IWC) based on the representative plant flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 10% of the test organisms (LC10) if the test is for acute toxicity, and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity. The Permittee must eliminate effluent toxicity and supply the EPD with data and evidence to confirm toxicity elimination.

§ 430.01 General definitions.

In addition to the definitions set forth in 40 CFR part 401 and 40 CFR 403.3, the following definitions apply to this part:

(a) *Adsorbable organic halides (AOX)*. A bulk parameter that measures the total mass of chlorinated organic matter in water and wastewater.

(b) *Annual average*. The mean concentration, mass loading or production-normalized mass loading of a pollutant over a period of 365 consecutive days (or such other period of time determined by the permitting authority to be sufficiently long to encompass expected variability of the concentration, mass loading, or production-normalized mass loading at the relevant point of measurement).

(c) *Bleach plant*. All process equipment used for bleaching beginning with the first application of bleaching agents (e.g., chlorine, chlorine dioxide, ozone, sodium or calcium hypochlorite, or peroxide), each subsequent extraction stage, and each subsequent stage where bleaching agents are applied to the pulp. For mills in subpart E of this part producing specialty grades of pulp, the bleach plant includes process equipment used for the hydrolysis or extraction stages prior to the first application of bleaching agents. Process equipment used for oxygen delignification prior to the application of bleaching agents is not part of the bleach plant.

(d) *Bleach plant effluent*. The total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof.

(e) *Chemical oxygen demand (COD)*. A bulk parameter that measures the oxygen-consuming capacity of organic and inorganic matter present in water or wastewater. It is expressed as the amount of oxygen consumed from a chemical oxidant in a specific test.

(f) *Elemental chlorine-free (ECF)*. Any process for bleaching pulps in the absence of elemental chlorine and hypochlorite that uses exclusively chlorine dioxide as the only chlorine-containing bleaching agent.

(g) *End of the pipe*. The point at which final mill effluent is discharged to waters of the United States or introduced to a POTW.

(h) *Fiber line*. A series of operations employed to convert wood or other fibrous raw material into pulp. If the final product is bleached pulp, the fiber line encompasses pulping, de-knotting, brownstock washing, pulp screening, centrifugal cleaning, and multiple bleaching and washing stages.

(i) *Minimum level (ML)*. The level at which the analytical system gives recognizable signals and an acceptable calibration point. The following minimum levels apply to pollutants in this part:

Pollutant	Method	Minimum level
2,3,7,8-TCDD	1613	10 pg/L ^a
2,3,7,8-TCDF	1613	10 pg/L ^a
Trichlorosyringol	1653	2.5 ug/L ^b
3,4,5-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,6-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,5-Trichloroguaiacol	1653	2.5 ug/L ^b
3,4,6-Trichloroguaiacol	1653	2.5 ug/L ^b
4,5,6-Trichloroguaiacol	1653	2.5 ug/L ^b
2,4,5-Trichlorophenol	1653	2.5 ug/L ^b
2,4,6-Trichlorophenol	1653	2.5 ug/L ^b
Tetrachlorocatechol	1653	5.0 ug/L ^b
Tetrachloroguaiacol	1653	5.0 ug/L ^b
2,3,4,6-Tetrachlorophenol	1653	2.5 ug/L ^b
Pentachlorophenol	1653	5.0 ug/L ^b
AOX	1650	20 ug/L ^b

^aPicograms per liter.

^bMicrograms per liter.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
4244 International Parkway, Suite 110
Atlanta, Georgia 30354

FACT SHEET

APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
TO WATERS OF THE STATE OF GEORGIA

Application No. GA0003620

Date March 31, 2009

1. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant

Rayonier Performance Fibers, LLC
P.O. Box 2070
4470 Savannah Highway
Jesup, Georgia 31598

b. Description of Applicant's Operation

Pulp and Paper Mill, produces market bleach kraft and dissolved kraft.

c. Production Capacity of Facility

1819 A.D. tons/day

d. Applicant's Receiving Waters

Altamaha River

A map showing the location of the discharge is located in the application.

e. Description of Existing Pollution Abatement Facilities

Screening, Primary Clarification, Nutrient Addition, and Aeration Basin.

f. Description of Discharges (as reported by applicant)

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Long Term Average Flow	-	57.15 mgd
Average Winter Temperature	-	25 °C
Average Summer Temperature	-	32 °C
pH Range (std. units)	-	7.6 – 8.4

Pollutants which are present in significant quantities or which are subject to effluent limitation are as follows:

<u>Effluent Characteristic</u>	<u>Reported Value</u>
BOD ₅	62 mg/l
Total Suspended Solids (TSS)	88 mg/l
Fecal Coliform (highest 30-day avg)	2 CFU/100ml

2. PROPOSED EFFLUENT LIMITATIONS

Note: Effluent limits remain unchanged for BOD₅, TSS, and dioxin from the previous permit.

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6 - 9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
BOD ₅	
May 1 – November 30	22,300 lbs/day Avg. Daily 33,450 lbs/day Max. Daily
December 1- April 30	32,000 lbs/day Avg. Daily 48,000 lbs/day Max. Daily
TSS	42,010 lbs/day Avg. Daily 77,600 lbs/day Avg. Daily
Dioxin (2,3,7,8-TCDD)	0.000153 µg/l

Serial 003 - Storm Water Runoff

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6-9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
TSS	Only 10% of Effluent limit

Note: Discharge scenarios are given in Page 2 of the permit, following the table of limitations.

Serial 004 – Bleach Plant Discharge (Internal Waste Stream)

Chloroform	12.54 lbs/day Max. Daily 7.502 lbs/day Avg. Daily
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Various Compounds listed with limits below the minimum detection levels (ML).

3. MONITORING REQUIREMENTS

The applicant will be required to monitor regularly for flow and those parameters limited in Section 2 above with sufficient frequency to ensure compliance with the permit conditions. Frequency, methods of sampling, and reporting dates will be specified in the final permit.

4. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

N/A

5. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

See Part III, Special Requirements of NPDES permit, attached.

6. WATER QUALITY STANDARDS AND EFFLUENT STANDARDS APPLIED TO THE DISCHARGE

Code of Federal Regulations (Title 40 CFR Part 430 Subpart A – “Dissolving Kraft Subcategory and Subpart B- “Bleached Papergrade Kraft and Soda Subcategory”) Effluent Guidelines

The Altamaha River is classified as fishing. The effluent BOD₅ limitations were derived to meet this classification.

Limitations for dioxin (2,3,7,8-TCDD) have been imposed on the discharge utilizing the 10⁻⁵ human health risk level concentration at average stream flow conditions. These levels are established in Chapter 391-3-6-.03(5) of the Georgia Rules and Regulations for Water Quality Control (Revised July 2000). The existing permit limit for dioxin was more stringent than the computed value of 0.00017 µg/l based upon stream calculations.

7. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

a. Comment Period

The Georgia Environmental Protection Division (EPD) proposes to issue an NPDES permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

Interested persons are invited to submit written comments on the permit application or on EPD's proposed determinations to the following address:

Georgia Environmental Protection Division
4220 International Parkway
Suite 101
Atlanta, Georgia 30354

All comments received prior to expiration of the public notice period will be considered in the formulation of final determinations with regard to this application.

b. Public Hearings

Any applicant, affected state or interstate agency, the Regional Administrator of the U. S. Environmental Protection Agency (EPA) or any other interested agency, person or group of persons may request a public hearing with respect to an NPDES permit application if such request is filed within thirty (30) days following the date of the public notice for such application. Such request must indicate the interest of the party filing the request, the reasons why a hearing is requested, and those specific portions of the application or other NPDES form or information to be considered at the public hearing. The Director shall hold a hearing if he determines that there is sufficient public interest in holding such a hearing. If a public hearing is held, notice of same shall be provided at least thirty (30) days in advance of the hearing date.

In the event that a public hearing is held, both oral and written comments will be accepted; however, for the accuracy of the record, written comments are encouraged. The Director or his designee reserves the right to fix reasonable limits on the time allowed for oral statements and such other procedural requirements as he deems appropriate.

Following a public hearing, the Director, unless he should decide to deny the permit, may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue the permit. Notice of issuance or denial will be circulated to those persons or groups who participated in the hearing; and to those persons or groups who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of the application for permit.

c. Contested Hearings

Any person who is aggrieved or adversely affected by the issuance or denial of a permit by the Director of EPD may petition the Director for a hearing if such petition is filed in the office of the Director within thirty (30) days from the date of notice of such permit issuance or denial. Such hearing shall be held in accordance with the EPD Rules, Water Quality Control, subparagraph 391-3-6-01.

Petitions for a contested hearing must include the following:

1. The name and address of the petitioner;
2. The grounds under which petitioner alleges to be aggrieved or adversely affected by the issuance or denial of a permit;
3. The reason or reasons why petitioner takes issue with the action of the Director;
4. All other matters asserted by petitioner which are relevant to the action in question.

d. Issuance of the Permit When No Public Hearing Is Held

If no public hearing is held, and, after review of the written comments received, the Director determines that a permit should be issued and that his determinations as set forth in the proposed permit are substantially unchanged, the permit will be issued and will become final in the absence of a request for a Contested Hearing. Notice of issuance or denial will be circulated to those persons who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of such proposed permit.

If no public hearing is held, but the Director determines, after a review of the written comments received, that a permit should be issued but that substantial changes in the proposed permit are warranted, public notice of the revised determinations will be given and written comments accepted in the same manner as the initial notice of application was given and written comments accepted pursuant to EPD Rules, Water Quality Control, subparagraph 391-3-6-.06(7)(b). The Director shall provide an opportunity for public hearing on the revised determinations. Such opportunity for public hearing and the issuance or denial of a permit thereafter shall be in accordance with the procedures as are set forth above.

Permit Rationale						
			Percent Dissolving	Percent Bleached	Dissolving ADT per Day	Bleached ADT per Day
		ADT / Day	Kraft	Kraft		
		1819.5	50.2%	49.8%	913.389	906.111
Dioxin (2,3,7,8 - TCDD)			Human Health Criteria -		0.0000012 ug/liter	
Altamaha River Avg Flow			8965.5 MGD			
Plant Avg Daily Flow			57.15 MGD			
Dilution Factor:			141.08594			
Dioxin Calc'd Limit			0.0001693 ug/l			
Existing Limit is lower-			0.000153 ug/l			
Chloroform			(FACTOR)			
	Pounds per klbs	Pounds per Ton	Pounds per Ton			
	0.00692	2000	0.01384	Max	12.540576	lbs/day
	0.00414	2000	0.00828	Avg	7.5025991	lbs/day
The Waste Load Allocation Sheet is attached for BOD and TSS.						

National Pollutant Discharge Elimination System Waste Load Allocation Form

Part I: Background Information

WLA Request Type: Reissuance ☒ Expansion ☐ Relocation ☐ New Discharge ☐
 Facility Name: Rayonier Performance Fibers LLC County: Wayne WQMU: 0692
 NPDES Permit No.: GA0003620 Expiration Date: December 31, 2007 Outfall Number: 001 and 002
 Receiving Water: Altamaha River River Basin: Altamaha 10-Digit HUC: 0307010604
 Discharge Type: Domestic ☐ Industrial ☒ Both ☐ Proportion (D:I): Flow(s) Requested (MGD): 60-70 (average)
 Industrial Contributions Type(s): pulp, paper and paperboard production
 Treatment Process Description: activated sludge, extended aeration
 Additional Information: (history, special conditions, other facilities):
 Requested by: AWL Title: Program: PCEP
 Telephone: Date:

Part II: Receiving Water Information

Receiving Water: Altamaha River Designated Use Classification: Fishing
 Integrated 305(b)/303(d) List: Yes ☐ No ☒ Partial Support: ☐ Not Support: ☐ Criteria:
 Total Maximum Daily Load: Yes ☐ No ☒ Parameter(s) WLA Complies with TMDL Yes ☐ No ☐

Part III: Water Quality Model Review Information

Model Type: Uncalibrated ☐ Calibrated ☒ Verified ☐ Cannot be Modeled ☐ Model Length (mi): 110.7
 Field Data: None ☐ Fair ☐ Good ☒ Excellent ☐
 Model and Field Data Description: Steady-state dissolved oxygen Georgia DOSAG model.
 Critical Water Temperature (°C): 28.5 Drainage Area (mi²): Approx. 13600 7Q10 streamflow at discharge (cfs): Approx. 2250
 7Q10 Yield (cfs/mi²): Velocity (range fps): 0.5 - 3.2 1Q10 streamflow at discharge (cfs): Approx. 2200
 Effluent Flow Rate (cfs): 108 7Q10 IWC (%): 4.6 Mean annual streamflow at discharge (cfs): Approx. 13900
 Slope (range - fpm): 0.04 - 1.3 K1: 0.1 K3: 0.05 Escape Coef. (ft⁻¹): 0.025 K2 (range):
 SOD: f-Ratio (BOD₅/BODₛ): 4.5 Background Hardness (mg/L as CaCO₃): 25
 The predicted minimum dissolved oxygen concentration is 5.02 mg/L, occurring 40 miles downstream from the discharge.
 The modeling parameters and results cited above are from the modeling analysis for the original waste load allocation. No review of, or revisions to, the original modeling analysis or the waste load allocation were made.

Part IV: Recommended Permit Limitations and Conditions (lbs/day as a daily average except as noted)

Rationale: Same as current ☒ Revised ☐ New ☐ Note that monitoring of total phosphorus is recommended.
 Location: Altamaha River

Period	Effluent Flow Rate (MGD)	BOD₅	TSS	pH (std. units)	Total Phosphorus
May - November	Monitor	22,300	42,010	6.0 - 9.0	Monitor
December - April	Monitor	32,000	42,010	6.0 - 9.0	Monitor

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Additional Comments:

*The limits are for 001 and 002 combined.

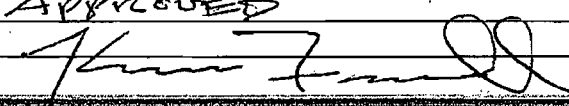
Priority pollutant permit limits and aquatic toxicity testing requirements are to be determined by PCEP.

Current permit requirements include a 120-day long-term biochemical oxygen demand (BOD₁₂₀) test once a year, monitoring of color (weekly), and in-stream monitoring of BOD₅, dissolved oxygen, pH, and water temperature twice a month from May through November.

Prepared by: Larry Guerra LCG Date: 10/07/2008 Reviewed by: Andy Kao HAK Date: 10/07/08

Part V: Assistant Branch Chief Comments

APPROVED

Kevin Farrell  Date: 10/14/08

78927

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River group planning lawsuit

Altamaha Riverkeeper cites Rayonier Inc.'s pulp mill discharges.

BY **TERESA STEP ZINSKI** | STORY UPDATED AT 5:40 AM ON WEDNESDAY, DEC. 10, 2008[EMAIL](#) [PRINT](#) [BLOG THIS](#) [COMMENT](#)[SHARE](#)

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BRUNSWICK - Environmentalists plan to sue Rayonier Inc. asserting the company is polluting the Altamaha River with putrid-smelling wastewater from its Jesup pulp mill.

Attorneys representing the Altamaha Riverkeeper filed a 60-day notice Tuesday stating it intends to sue the company over suspected violations of the federal Clean Water Act and state water quality standards.

The nonprofit environmental organization also asserts Rayonier has done little over the past 10 years to reduce the stinking, coffee-colored water the mill discharges into the river. In a 2002 consent agreement, the company agreed to clean up the discharges, the Riverkeeper said.

"We allege Rayonier has violated Clean Water Act standards more than 600 times over the past 10 years," said Deborah Sheppard, executive director of the Altamaha Riverkeeper.

Sheppard said she became nauseous when inspecting the river near the mill's discharge pipes. In addition, people who fish in that area have reported catching fish with lesions and ulcers, and some "are concerned about the potential impact of the discharge on their health," she said.

"The problem is not improving," she said. "... We did this because they were not living up to their agreement. It's past due time for them to take responsibility and clean up the river."

However, Rayonier has not been found in violation of either federal or state clean water standards at the mill. No such violations of its discharge permit have been found by the Georgia Environmental Protection Division, which enforces those regulations, said Mike Bell, company spokesman.

In an agreement March with EPD, the company pledged to install new equipment and adjust its pulp processing procedures to better cleanse and lighten the color of the discharge, Bell said.

"We have committed to spend \$65 million to \$75 million over the next seven years to improve the quality of the discharge from the mill," Bell said. "This will be a substantial capital investment, and it will substantially improve the color and quality of the water discharged into the river."

The Altamaha Riverkeeper, through the planned lawsuit, wants a judge to order Rayonier to do more and act faster to clean up its wastewater, said Justine Thompson, executive director of GreenLaw, a group of attorneys that represents the public and environmental groups in natural resources cases.

"The cleanup of wastewater from Rayonier has stalled, [and] we must get it moving again. We cannot allow continued pollution of our rivers when we have so little water in them already due to the drought," Thompson said.

Thompson also said "EPD has allowed this degradation of one of our most important waterways to go on far too long" by not forcing the company to act quicker.

The 60-day notice gives the company time to respond with action before the lawsuit is filed, Thompson said.

Bell said the company intends to keep its word.

"We've made a commitment to do this," he said.

teresa.stepzinski@jacksonville.com, (912) 264-0405

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**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

CONSENT ORDER

**RAYONIER PERFORMANCE FIBERS, LLC
JESUP, GEORGIA
WAYNE COUNTY**

ORDER NO. EPD-WQ- 4837

Whereas, Rayonier Performance Fibers, LLC (hereinafter called "Rayonier") presently owns and operates a dissolving pulp mill (hereinafter called the "Facility") in Jesup, Wayne County, Georgia; and

Whereas, the Facility discharges into the Altamaha River through two distinct permitted outfalls; and

Whereas, pursuant to the State of Georgia Office of State Administrative Hearings' Administrative Law Judge's February 11, 2002 Order on Intervenor's Motion for Summary Determination, the Facility is regulated as a Dissolving Kraft Subcategory under 40 C.F.R. Part 430, Subpart A; and

Whereas, the Facility is the only such facility in the State of Georgia and is one of only three currently operating in the United States; and

Whereas, on May 25, 2001, the Georgia Department of Natural Resources, Environmental Protection Division ("EPD" or the "Division") issued to Rayonier National Pollutant Discharge Elimination System Permit No. GA0003620, with respect to the discharge of treated wastewater from Rayonier's Facility (the "Permit"); and

Whereas, the Facility is subject to, among other regulations, the Ga. Comp. R. & Regs. r. 391-3-6-.03(5), General Criteria for All Waters; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c), which states that "all waters shall be free from material related to municipal, industrial, or other discharges which produce turbidity, color, odor, or other objectionable conditions which interfere with legitimate water quality uses"; and

Whereas, the General Criteria for All Waters includes the Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(d), which states that "all waters shall be free from turbidity which results in a substantial visual contrast in a water body due to man-made activity"; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d) are narrative water quality standards rather than numeric standards ("Narrative Water Quality Standards"); and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(d)(1)(iii), if EPD concludes that a facility's discharge causes or has the reasonable potential to cause a violation of a narrative standard, the facility's permit must contain an effluent limit for the pollutant; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(d)(1)(ii), when determining whether a discharge has the reasonable potential to violate

a Narrative Water Quality Standard, EPD considers the existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, the sensitivity of species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and 40 C.F.R. § 122.44(d)(vi) sets out the options by which, if EPD determines that a discharge has the reasonable potential to violate a Narrative Water Quality Standard, EPD can establish an effluent limit for the pollutant; and

Whereas, Ga. Comp. R. & Regs. r. 391-3-6-.06(8)(c) incorporates 40 C.F.R. § 122.44 by reference and under 40 C.F.R. § 122.44(k)(3), effluent limitations may take the form of Best Management Practices when numeric limitations are not feasible; and

Whereas, EPD's policy regarding color discharges from existing facilities is that, upon permit reissuance, existing facilities with color in their effluent are required to collect color samples upstream and downstream of their discharge and to conduct an assessment of the sources of color; and

Whereas, the Permit required Rayonier to conduct a color impact study for its Facility; and

Whereas on June 22, 2001, the Altamaha Riverkeeper, Inc. ("ARK") challenged the issuance of the Permit, alleging that the Permit did not meet certain requirements of the federal Clean Water Act and Georgia law (the "Permit Challenge"); and

Whereas, ARK and Rayonier's predecessor-in-interest ("the Parties") entered into a settlement agreement dated as of April 15th 2002 (the "Settlement Agreement") to resolve the issues related to the Permit Challenge; and

Whereas, the EPD and an Office of State Administrative Hearings' Administrative Law Judge reviewed and accepted the Settlement Agreement to resolve the Permit Challenge; and

Whereas, Rayonier has submitted an application for a renewal of the Permit which has been extended administratively by the EPD ("Permit Application"); and

Whereas, on July 31, 2007, EPD received a citizen complaint regarding the Facility's effluent; and

Whereas, the citizen complaint alleged that the Facility's discharge violated the Narrative Water Quality Standards; and

Whereas, EPD has concluded that the aesthetic impact of the Facility's discharge has the reasonable potential to violate the Narrative Water Quality Standards because it has the reasonable potential to produce turbidity or other objectionable conditions that interfere with

legitimate water quality uses of the Altamaha River and it has the reasonable potential to cause turbidity that results in a substantial visual contrast in the Altamaha River due to man-made activity; and

Whereas, EPD, under the Georgia Water Quality Act, has the authority to issue and enforce National Pollutant Discharge Elimination System permits that ensure compliance with applicable standards, including the state water quality standards; and

Whereas, Rayonier does not agree with EPD's conclusion that its Facility has a reasonable potential to violate the Narrative Water Quality Standards, but wishes to avoid the time and expense of litigation and resolve these matters with EPD; and

Whereas, both Rayonier and EPD wish to cooperate fully to resolve the issues in this Order; and

Whereas, Rayonier currently estimates that, implementing the Color Reduction Plan outlined below over the life of this Order will cost between \$65 and \$75 million.

NOW, THEREFORE, before taking any testimony and without adjudicating the merits of the parties' positions in this matter, and without admission or assignment of liability by Rayonier, the parties hereby resolve the issues in this case by agreement and upon the order of the Director and the consent of Rayonier as follows:

1. Color Reduction Plan. Rayonier shall implement the following Color Reduction Plan at its Facility.

a. Brownstock Washing. Reducing color from the effluent at the Facility is dependent upon capturing more black liquor from the pulping and brownstock washing processes and limiting the volume of black liquor that enters the wastewater treatment system. In order to capture more liquor, the Facility must install new technology, modify existing processes, and change certain operational practices.

i. Improved brownstock washing is a known method for capturing more black liquor and reducing the amount of color carried through the process. Brownstock washing efficiency is described in terms of carryover of kilograms (kg) of sodium sulfate (Na_2SO_4) remaining in each ton of washed pulp (expressed in air dried metric tons – ADMT). The Environmental Protection Agency (EPA) recognizes 10 kg/ADMT sodium sulfate carryover as representing 99% effective brownstock washing and the technology basis for

establishing effluent guidelines for papergrade kraft pulp facilities.¹

ii. Rayonier shall install equipment and make related process changes in its A and B mills that will improve effectiveness of brownstock washing. The goal of these improvements shall be designed to reduce salt cake carryover from the brownstock washing operation to at or below 10 kg/ADMT of sodium sulfate in unbleached, washed pulp.

b. Oxygen Delignification and Filtrate Recycling. Oxygen delignification ("O₂ Delignification") can also be used to recover additional black liquor from papergrade kraft pulp. The amount of delignification is expressed as a "kappa number". EPA recognizes extended delignification in softwood as a kappa value of 20 or lower.

i. Rayonier shall install an oxygen delignification system in its C mill. The system shall be a two-stage system targeted to reduce the kappa number of pulp entering the first bleaching stage to between 12 and 16 kappa units.

¹ While the Facility is not subject to the papergrade kraft technology-based effluent guidelines, the parties agree that such guidelines are instructive in analyzing the efficiency of the brownstock washing and O₂ Delignification at the Facility.

- ii. Post delignification washing filtrate will be recycled through the brownstock washers, combined with brownstock washing filtrate, and further processed in the mill's recovery cycle.
- c. Spill Recovery. Rayonier shall continue to upgrade its black liquor spill recovery systems, using customary engineering practices developed in the industry. The system shall be designed to recover spills and to pump the spills to the mill's main black liquor recovery system, directly or via appropriate intermediate stages. A minimum of eight (8) spill collection systems, complete with proper instrumentation, shall be installed in areas in the mill where black liquor is stored, handled, or could enter the mill's sewer system (e.g., digesters, knot pads, and recovery operations).
- d. Operating Practices (C-Mill Screen Room). The screening operation in C mill shall be designed to be operated in a "closed" condition, which means that color containing filtrate streams will be recycled with the exception of a purge stream for sand removal and rejects from the brownstock cleaners.
- e. Color Balance. In order to understand and control color contributions to the mill sewer, Rayonier shall conduct a mill color balance not less than once every six months. The color balance shall be designed to measure the contribution of color compounds

from the various mill process elements, and shall be sufficiently detailed to identify the source of untreated discharges of colored material, measured before the effluent treatment plant.

f. Color Reduction Technologies. The above referenced brownstock washing improvements, O₂ Delignification, filtrate recycling, spill recovery, operating practices and color balances (the "Color Reduction Technologies"), constitute the Facility's Best Management Practices and serve as the appropriate means to achieve compliance with the Narrative Water Quality Standards, Ga. Comp. R. & Regs. r. 391-3-6-.03(5)(c) and r. 391-3-6-.03(5)(d).

2. Implementation of Color Reduction Plan. Rayonier shall install and implement the Color Reduction Plan in accordance with the following deadlines:

a. EPD acknowledges that engineering, bidding, contract negotiation, construction (which must be performed during planned mill outages), employee training and full project implementation will take a substantial period due to the magnitude of the Color Reduction Technologies. As more fully described in Section 9 below, Rayonier shall prepare a detailed capital implementation schedule based on the engineering work completed to support the Color Reduction Technologies and improvements described above. The schedule shall provide for

consistent implementation of projects over the period specified in this Order, with all components of the Color Reduction Plan completed no later than eighty-four (84) months following the effective date of this Order. Rayonier shall submit to EPD the schedule and provide EPD with semi-annual progress reports as described below.

b. For the period over which the capital improvements required by this Order are implemented, Rayonier shall provide semi-annual progress reports to EPD summarizing the activities and achievements for the previous period and outlining the work plan for the next six months. Each progress report shall be provided to EPD not later than forty-five (45) days following the close of the six-month period covered by the report. The first such progress report shall cover the period commencing with the effective date of this Order and ending six months following the effective date of this Order.

c. As described above, the Color Reduction Technologies consist of three major process improvements and modifications: (1) O₂ Delignification in C mill; (2) improved brownstock washing in A mill, and (3) improved brownstock washing in B mill, each being individually referred to as a "Project" and collectively as the "Projects."

d. The Projects will be implemented in stages. The B mill brownstock washing Project shall be completed within eighteen (18) months following the effective date of this Order. The O₂ Delignification Project in C mill shall be completed in two phases, the first phase of which is additional brownstock washing capacity and the second phase of which is the installation of oxygen delignification equipment. The first phase of the O₂ Delignification Project shall be completed within thirty-nine (39) months and the second phase shall be completed within sixty-three (63) months following the effective date of this Order. The A mill brownstock washing Project and any other remaining work required by the Color Reduction Plan but not designated as one of the capital Projects shall be completed within eighty-four (84) months following the effective date of this Order. Rayonier shall demonstrate progress by providing EPD with semi-annual progress reports as described above.

e. Within thirty-six (36) months following the effective date of this Order Rayonier shall install eight spill collection systems in addition to those that it employed at the beginning of 2007. Two (2) shall be installed not later than twelve (12) months following the effective date of this Order; an additional three (3) not later than twenty-four (24) months following the effective date of this Order; and the final

three (3) not later than thirty-six (36) months following the effective date of this Order. All spill collection systems shall be commissioned and operators trained within forty-eight (48) months of the effective date of this Order. Rayonier shall provide updates to EPD in the semi-annual progress reports until such time as all spill collection systems are commissioned and operators trained.

3. Color Limits.

a. Rayonier shall achieve at least the color discharge performance specified in the following chart commencing with the expiration of each deadline, which deadline shall be calculated from the effective date of this Order:

Deadline		Annual Average Color Discharge
Within	18	350 U.S. tons/day
months		
Within	63	300 U.S. tons/day
months		
Within	84	270 U.S. tons/day
months		
Within	96	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average
months		

b. The Color Limits shall be annual averages, expressed in U.S. tons (2,000 pounds) of color per day, consistent with the above-described limits. The Annual Average is the arithmetic average of color results for any daily samples taken in any calendar year. A daily sample is any grab sample or composite sample for any calendar day. Daily samples shall be taken at least five (5) times per week.

c. The Color Limits specified in the table above shall be incorporated into the Permit upon the Permit's renewal.

4. Diffuser. Rayonier shall also conduct an engineering study to evaluate the feasibility, cost, and effect of installing a diffuser at its discharge to further minimize the aesthetic impact of color on the Altamaha River. The diffuser study should also evaluate the need for Rayonier to obtain additional permits for its installation, including, but not limited to, a permit from U. S. Army Corps of Engineers. Rayonier shall submit the results of the feasibility study to EPD within twelve (12) months of the Order's effective date.

5. Contingency for Evaporation and Recovery Capacity. The Color Reduction Technologies and compliance with the Color Limits largely depend on additional collection of black liquor. A project to upgrade evaporation capacity may be required to manage the added black liquor volume. In order to accommodate the increased evaporator and

boiler capacity, and to sustain Facility production increases, Rayonier may need to obtain a Prevention of Significant Deterioration ("PSD") or other permits from EPD or other regulatory agencies. If Rayonier requires additional permits to meet the limits contained in this Order, Rayonier shall notify EPD of the permits that are required and shall diligently pursue obtaining any and all such permits. If the required permits are not issued, are delayed or are issued with more restrictive limits or conditions than Rayonier requested, Rayonier shall implement the requirements of this Order to the fullest extent possible in a manner that achieves compliance with existing or modified permits and that does not adversely impact the production capacity of the Facility.

6. Best Available Technology. As stated by EPA in its Notice of Preliminary 2006 Effluent Guideline Program Plan, 70 FR 51042 (Aug. 29, 2005), EPD may use its Best Professional Judgment to develop new dissolving Kraft mill effluent limits applicable to Rayonier's Jesup mill. Those limits are to be based on Best Available Technology Economically Achievable ("BAT"). In its NPDES renewal Permit application, Rayonier has stated that it believes that the BAT for the Jesup mill is demonstrated by the current operation of the mill. However, if it is determined by EPD that some or all of the Color Reduction Technologies must be implemented to meet the effluent limits for the mill, then those technologies shall be implemented on the schedule provided in Section 2 herein.

7. Force Majeure. Failure to complete a condition mandated by this Consent Order within the time period specified may be excused and not subject Rayonier to further enforcement action if the failure is the result of a force majeure event as identified below and Rayonier complies with the requirements set forth below. Rayonier shall have the burden of proving to the Division that it was rendered unable, wholly or in part, by Force Majeure to carry out its obligations.

The term "Force Majeure" as used herein shall be limited to the following: Act of God; strike, lockout, or other labor or industrial disturbance not caused by an unfair labor practice by the Rayonier; act of the public enemy; war; blockade; public riot; fire; storm; flood; explosion; failure to secure timely and necessary federal, state, or local approvals or permits, provided such approvals or permits have been timely and diligently sought; or other delay caused by unforeseeable circumstances beyond the reasonable control of Rayonier, its employees, agents, consultants, or contractors. Force Majeure does not include financial inability to perform an obligation required by this Consent Order or a failure to achieve compliance with applicable regulatory permits.

Rayonier shall notify the Division in writing within thirty (30) days after Rayonier learns of an occurrence Rayonier believes constitutes a Force Majeure. Such written notice shall include Rayonier's best estimate of the anticipated length (if known) and cause of any delay due to Force

Majeure. Failure to so notify the Division shall constitute a waiver of any claim to Force Majeure.

Rayonier and the Division agree to negotiate informally and in good faith to identify delays resulting from Force Majeure. Rayonier shall comply with the Division's determination as to the appropriate time period to be excused by Force Majeure, which shall be communicated to Rayonier in writing. In the event that any circumstance or series of circumstances cause the schedule to extend over thirty (30) calendar days, Rayonier and the Division shall meet formally to assess the overall schedule impact and attempt to mitigate same. Any Force Majeure event or events that cause the schedule to extend over sixty (60) consecutive days shall be noticed to the citizens of Wayne County in a form to be determined by the Division.

If Force Majeure has occurred, the affected time for performance specified in this Consent Order shall be extended for a period of time equal to the delay resulting from such Force Majeure. Rayonier shall exercise due diligence and adopt all reasonable measures to avoid or minimize any delay.

8. Changed Circumstances. Rayonier may petition EPD to modify the terms of this Order in the event of changed circumstances, and EPD agrees to consider such petition in good faith. Such circumstances may include, but are not limited to, significant changes in the operation of the

mill and the availability of new, improved or more cost-effective color reducing technologies or methods that may complement or replace the Color Reduction Technologies that Rayonier is required to implement herein.

9. Permit Application Modification/Permit Incorporation. If, upon execution of this Order, Rayonier's Permit has not been renewed, Rayonier shall modify its Permit application to incorporate paragraphs 1 through 6 of this Order (hereinafter the "Key Provisions"). The renewal Permit shall include the Key Provisions that are to be implemented within the term of such renewal Permit. Any remaining Key Provisions with completion dates beyond the term of the renewal Permit shall be incorporated into any subsequent Permit(s).

Completing the Projects defined in Section 2.c. will require numerous phases of design and construction (hereinafter the "Interim Projects"). The Projects and the Interim Projects shall be completed in accordance with a detailed schedule to be proposed by Rayonier that shall be included in the renewal Permit. This schedule shall provide that Rayonier shall complete a Project or an Interim Project no less frequently than every nine (9) months and shall report each such completion in writing to EPD within fourteen (14) days. Rayonier shall provide EPD with updates regarding the implementation of the Projects and Interim Projects in the semi-annual reports required under Section 2.b. Rayonier shall

inform EPD of any necessary modifications to the schedule of Interim Projects in the semi-annual reports.

10. Termination of Order. This Order shall terminate the earliest of the completion of the installation of the Color Reduction Technologies, when EPD issues a renewal Permit that incorporates the final Key Provisions, or at such time EPD is prohibited by court order from incorporating any Key Provision in any subsequent Permit.

11. Captions. All headings contained herein are not to be considered in the construction or interpretation of this Agreement, as they are included for reference only.

12. Non-Admission of Liability. This Order is executed and entered solely for the purpose of resolving and disposing of the allegations set forth herein and does not constitute a finding, adjudication, or evidence of a violation of any law, rule, or regulation by Rayonier, and, by consenting to this Order, Rayonier does not admit to any factual allegation contained herein or to any violations of State laws. In addition, this Order is not intended to create and it shall not be construed or otherwise deemed to recognize or create any claim, right, liability, estoppel, or waiver of rights in favor of any third-party or parties.

13. Stipulated Penalties.

- a. The failure of Rayonier to meet the deadlines for implementing the Color Reduction Plan (as specified in Section 2 of

the Order) or report submittals shall result in the following stipulated penalties:

Period of Non-Compliance	Stipulated Penalty (Plan deadline)	Stipulated Penalty (Report submittals)
1 st through 60 th day	\$1,000	\$100
61 st through 120 th day	\$2,500	\$250
121 st day and beyond	\$5,000	\$500

b. The above stipulated penalties shall not apply to the Color Limits, which shall become enforceable Permit terms. Stipulated Penalties shall apply only to the failure to complete the Projects defined in Section 2.c by the deadlines set forth in Section 2.d. They shall not apply to a failure to complete an Interim Project by the date set forth on the schedule to be included in the renewal Permit. Notwithstanding this, EPD reserves the right to pursue an enforcement action for a failure to complete or install an Interim Project every nine months unless such failure is excused under the terms of this Consent Order.

14. Effect of Order.

This Order does not waive the Director's right to take further enforcement action against Rayonier, or imply that the Director will not take such action, either for (1) violations referenced herein if Rayonier fails to fully comply with the conditions of this Order, or (2) violations not

referenced herein based on any other relevant requirements of this Order, the law, rules, and permit(s).

By agreement of the parties, this Order shall have the same force and binding effect as a Final Order of the Director, and shall become final and effective immediately upon its execution by the Director. The parties further agree that this Order shall not be appealable by Rayonier, and Rayonier hereby waives its right to initiate any administrative or judicial hearing on the terms and conditions of this Order.


Unless modified or terminated by a subsequent order, or otherwise specified in writing by the Director, this Order shall be deemed satisfied and terminated upon full, complete, and timely performance of each and every condition set forth herein.

It is so ORDERED and AGREED to this 6th day of March 2008.



CAROL A. COUCH, Ph.D., DIRECTOR
ENVIRONMENTAL PROTECTION DIVISION

RAYONIER PERFORMANCE FIBERS, LLC

BY: 
NAME: W. Michael Burch
TITLE: Vice President & General Manager
DATE: 2/14/08

PERMIT NO. GA0003620

**STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION**

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the State Act; the Federal Water Pollution Control Act, as amended (33 U.S. C. 1251 et seq.), hereinafter called the Federal Act; and the Rules and Regulations promulgated pursuant to each of these Acts,

**Rayonier Performance Fibers LLC
Post Office Box 2070
Jesup, Georgia 31598**

Is authorized to discharge from a facility located at

**4470 Savannah Highway
Jesup, Wayne County, Georgia
Latitude 31 deg. 39 min. 04 sec. Longitude 81 deg. 49 min. 06 sec.**

to receiving waters

**Altamaha River
Altamaha River Basin**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II and III hereof.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Signed this st day of 2009.



Director,
Environmental Protection Division

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through , 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002, and 003 – Process wastewater, sanitary wastes, and stormwater runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based (lbs/day)		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow (MGD)	--	--	--	--	Continuous	Recorder	Influent or Effluent
BOD ₅ [*] , waste							
-- May 1 – Nov. 30	22,300	33,450	--	--	Daily	Composite	Effluent
-- Dec. 1 – Apr. 30	32,000	48,000	--	--	Daily	Composite	Effluent
TSS	42,010	77,600	--	--	Daily	Composite	Effluent
Color	--	--	--	--	Weekly	Composite	Effluent
BOD ₁₂₀					Annually	Composite	Effluent
AOX (kg/1000 kg)	0.623	0.9512	--	--	Weekly	Composite	Effluent

* These limits are the total mass limits for all three outfalls combined. The mass limit scenarios are as follows.

Scenario 1 – Outfall 002 can discharge 100% of the effluent with 001 & 003 discharging 0%.

Scenario 2 – Outfall 001 can discharge a maximum of 50% of the effluent limit, 003 a maximum of 10% of the effluent limit, and 002 can discharge the remaining percentage of the effluent limit.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored daily by a grab sample at the final effluent.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

All water shall be free from material related to the permittee's industrial discharge that produces turbidity, color, odor, or other objectionable conditions, which interfere with legitimate water uses.

The effluent sample location shall be defined as the discharge stream after treatment, but prior to mixing with any other waters.

Monitoring results for pollutants requiring annual analysis shall be submitted with the June Discharge Monitoring Report (DMR). Monitoring results for pollutants requiring quarterly analysis shall be submitted with the March, June, September, and December DMR.

Handwritten note: *Handwritten note: 40MT of unbleached pulp*

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

PART I

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Permit No. GA0003620

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During the period beginning on the effective date and lasting through 2014, the permittee is authorized to discharge from outfall(s) serial number(s) 004 - Bleach Plant effluent (internal waste stream). ⁽⁷⁾

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements		
	Mass Based		Conc. Based (ng/l)				
	30 Day Avg.	Daily Max.	30 Day Avg.	Daily Max.	Measurement Frequency	Sample Type ⁽⁵⁾	Sample Location ⁽⁶⁾
Flow (MGD)	—	—	—	—	Continuous	Recorder	Bleach Plant Effluent
TCDD ⁽⁴⁾				<ML	Monthly	Composite	Bleach Plant Effluent
TCDF ⁽⁴⁾				0.0319	Monthly	Composite	Bleach Plant Effluent
Chloroform ⁽²⁾ (g/kg) <i>by unsteady state</i>	4.14	6.92			Weekly ⁽²⁾	Composite	Bleach Plant Effluent
Trichlorosyringol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,5-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
3,4,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
4,5,6-trichloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,4,5-trichlorophenol ⁽³⁾	—	—	—	<ML	Monthly	Composite	Bleach Plant Effluent
2,4,6-trichlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachlorocatechol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Tetrachloroguaiacol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
2,3,4,6-Tetrachlorophenol ⁽¹⁾				<ML	Monthly	Composite	Bleach Plant Effluent
Pentachlorophenol ⁽³⁾				<ML	Monthly	Composite	Bleach Plant Effluent

<ML means less than the minimum level specified in §430.01(i) for the particular pollutant.

{1} The permittee shall adhere to EPA Method 1653 for these parameters.

{2} The permittee shall adhere to the approved EPA methods for chloroform, Methods 601 or 624, or Standard Methods 6210B or 6230B. In accordance with 40 CFR Part 430.02, weekly chloroform monitoring is not required if the permittee has provided certification of process changes in lieu of monitoring.

- DRAFT**
- {3} The permittee shall adhere to EPA Method 1653 for these parameters and submit a certification statement certifying that these chlorophenolic compounds are not being used as biocides.
 - {4} The permittee shall adhere to EPA Method 1613 for TCDD and TCDF.
 - {5} Bleach plant sampling will be conducted in accordance with EPA's established generic sampling plan described in Appendix B – Sample Collection Methods of the EPA guidance document entitled Permit Guidance Document, Pulp, Paper and Paperboard Manufacturing Point Source Category, EPA-821-B-00-003, except where exceptions are approved by the EPA. As an exception, EPD hereby approves the National Council for Air and Stream Improvement (NCASI) Special Report 98-01, Appendix C as the guidance for sample collection (full title is "NCASI Guidance on Sampling, Contracting, and Auditing Analytical Data for the Effluent Limitations Guidelines Monitoring Parameters – Special Report No. 98-01, April 1998). As a further exception for the collection of chloroform samples, EPD hereby approves the use of the second generation ISCO 6100R automated grab sampling device or other samplers capable of automating the grab sampling process, provided samples are collected according to the manual grab sampling requirements.
 - {6} Bleach plant effluent is defined as "the total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof (40 CFR 430.01). Monitoring locations are to be situated after the sewers have collected all of the acid or alkaline bleaching stage discharges and before they are mixed with other mill wastewaters. An exception is chloroform sampling, in which case the acid and alkaline monitoring locations are separate and should be at the point as close as possible to where bleach plant is discharged from process equipment.
 - {7} Sampling is not required if the bleach plant is not operating or if the bleach plant operates for less than 48 consecutive hours during the monitoring period.

B. SCHEDULE OF COMPLIANCE

- 1. The Permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

See Special Conditions on Page 11 of this document.
- 2. No later than 14 calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Environmental Protection Division of the Department of Natural Resources.

C. MONITORING AND REPORTING

- 1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45). Forms other than Form WQ 1.45 may be used upon approval by EPD. These forms and any other required reports and information shall be completed, signed and certified by a principal executive officer or ranking elected official, or by a duly authorized representative of that person, and submitted to the Division, postmarked no later than the 15th day of the month following the reporting period. Signed copies of these and all other reports required herein shall be submitted to the following address:

Coastal District Office
1 Conservation Way
Brunswick, Georgia 31520-8687

All instances of noncompliance not reported under Part I. B. and C. and Part II. A. shall be reported at the time the operation monitoring report is submitted.

3. Definitions

- a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.
- b. The "daily maximum" discharge means the total discharge by weight during any calendar day.
- c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentrations made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample.
- d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.
- e. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.
- f. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
- g. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources, which can reasonably be

expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- h. For the purpose of this permit, an annual average is based on a rolling average, not on a calendar year average.

4. Test Procedures

Monitoring must be conducted according to test procedures approved pursuant to 40 CFR Part 136 unless other test procedures have been specified in this permit.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date, and time of sampling or measurements, and the person(s) performing the sampling or the measurements;
- b. The dates of the analyses, and the person(s) who performed the analyses;
- c. The analytical techniques or methods used; and
- d. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The Division may require by written notification more frequent monitoring or the monitoring of other pollutants not required in this permit.

7. Records Retention

The permittee shall retain records of all monitoring information, including all records of analyses performed, calibration and maintenance of instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Division at any time.

8. Penalties

The Federal Clean Water Act and the Georgia Water Quality Control Act provide that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine or by

imprisonment, or by both. The Federal Clean Water Act and the Georgia Water Quality Control Act also provide procedures for imposing civil penalties which may be levied for violations of the Act, any permit condition or limitation established pursuant to the Act, or negligently or intentionally failing or refusing to comply with any final or emergency order of the Director of the Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

- a. Advance notice to the Division shall be given of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements. Any anticipated facility expansions, production increases, or process modifications must be reported by submission of a new NPDES permit application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Division of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.
- b. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 100 $\mu\text{g/l}$, (ii) five times the maximum concentration reported for that pollutant in the permit application, or (iii) 200 $\mu\text{g/l}$ for acrolein and acrylonitrile, 500 $\mu\text{g/l}$ for 2,4 dinitrophenol and for 2-methyl-4-6-dinitrophenol, or 1 mg/l antimony.
- c. All existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Division as soon as it is known or there is reason to believe that any activity has occurred or will occur which would result in any discharge on a nonroutine or infrequent basis, of any toxic pollutant not limited in the permit, if that discharge will exceed (i) 500 $\mu\text{g/l}$, (ii) ten times the maximum concentration reported for that pollutant in the permit application, or (iii) 1 mg/l antimony.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Division with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

- a. A description of the discharge and cause of noncompliance; and
- b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

5. Bypassing

a. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Division at least 10 days (if possible) before the date of the bypass. The permittee shall submit notice of any unanticipated bypass with an oral report within 24 hours from the time the permittee becomes aware of the circumstances followed by a written report within five (5) days of becoming aware of such condition. The written submission shall contain the following information:

1. A description of the discharge and cause of noncompliance; and
2. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying discharge.

b. Any diversion or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life, personal injury, or severe property damage; (ii) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime (this condition is not satisfied if the permittee could have installed adequate back-up equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and (iii) the permittee submitted a notice as required above. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. Upon written notification by the Division, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Sludge Disposal Requirements

Hazardous sludge shall be disposed of in accordance with the regulations and guidelines established by the Division pursuant to the Federal Clean Water Act (CWA)

and the Resource Conservation and Recovery Act (RCRA). For land application of non-hazardous sludge, the permittee shall comply with any applicable criteria outlined in the Division's "Guidelines for Land Application of Municipal Sludges." Prior to disposal of sludge by land application, the permittee shall submit a proposal to the Division for approval in accordance with applicable criteria in the Division's "Guidelines for Land Application of Municipal Sludges." Upon evaluation of the permittee's proposal, the Division may require that more stringent control of this activity is required. Upon written notification, the permittee shall submit to the Division for approval, a detailed plan of operation for land application of sludge. Upon approval, the plan will become a part of the NPDES permit. Disposal of non-hazardous sludge by other means, such as landfilling, must be approved by the Division.

7. Sludge Monitoring Requirements

The permittee shall develop and implement procedures to insure adequate year-round sludge disposal. The permittee shall monitor the volume and concentration of solids removed from the plant. Records shall be maintained which document the quantity of solids removed from the plant. The ultimate disposal of solids shall be reported monthly (in the unit of lbs/day) to the Division with the Operation Monitoring Report Forms required under Part I (C)(2) of this permit.

8. Power Failures

Upon the reduction, loss, or failure of the primary source of power to said water pollution control facilities, the permittee shall use an alternative source of power if available to reduce or otherwise control production and/or all discharges in order to maintain compliance with the effluent limitations and prohibitions of this permit.

If such alternative power source is not in existence, and no date for its implementation appears in Part I, the permittee shall halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of the Division, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated activity or facility is located or conducted or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times, to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and to sample any substance or parameters in any location.

2. Transfer of Ownership or Control

A permit may be transferred to another person by a permittee if:

- a. The permittee notifies the Director in writing of the proposed transfer at least thirty (30) days in advance of the proposed transfer;
- b. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittee (including acknowledgment that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) is submitted to the Director at least thirty (30) days in advance of the proposed transfer; and
- c. The Director, within thirty (30) days, does not notify the current permittee and the new permittee of the Division's intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

3. Availability of Reports

Except for data deemed to be confidential under O.C.G.A. § 12-5-26 or by the Regional Administrator of the EPA under the Code of Federal Regulations, Title 40, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at an office of the Division. Effluent data, permit applications, permittee's names and addresses, and permits shall not be considered confidential.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or
- d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in Natural Resources Defense Council, Inc. et.al. v. Russell E. Train, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:
 - (1) is different in conditions or more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.

5. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established pursuant to Section 307(a) of the Federal Clean Water Act for toxic pollutants, which are present in the discharge within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Clean Water Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of the Division shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Management Practices

- The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas, in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

14. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

15. Duty to Provide Information

- a. The permittee shall furnish to the Director of the Division, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish upon request copies of records required to be kept by this permit.
- b. When the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts and information.

16. Upset Provisions

Provisions of 40 CFR 122.41(n)(1)-(4), regarding "Upset" shall be applicable to any civil, criminal, or administrative proceeding brought to enforce this permit.

A. PREVIOUS PERMITS

- 1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

B. SPECIAL REQUIREMENTS

- 1. Paragraph 1 through 6 of Consent Order EPD-WQ-4837 (the Order) are hereby incorporated by reference into this permit. Rayonier shall install the equipment, perform the color balance, and meet all other obligations contained in the Order, all in accordance with the compliance schedule contained in the Order subject only to the force majeure and change in condition provisions of the Order. Rayonier shall have 12 months to sample final mill effluent in addition to the 84 months contained in the compliance schedule for completion of all equipment installation, at the end of which it will propose applicable BAT effluent limits for chloroform, chlorinated phenolics, TCDD

and TCDF for EPD's approval. The color limit timeline is given below. Any modifications to the Order and color limit timeline are hereby incorporated into this permit.

Deadline	Annual Average Color Discharge
Within 18 months	350 U.S. tons/day
Within 63 months	300 U.S. tons/day
Within 84 months	270 U.S. tons/day
Within 96 months	115% of the average of the color discharge for the immediately preceding 12 months, not to exceed 250 U.S. tons/day annual average

2. The permittee shall monitor all seventeen congeners of dioxin (2,3,7,8-TCDD) and furan (2,3,7,8-TCDF) in ambient fish fillet tissue in the facility's receiving stream. The dioxin monitoring program shall be conducted in accordance with the Study Plan To Conduct Dioxin Monitoring In Fish Tissue From The Vicinity Of Five Georgia Bleached Kraft Mills, March 31, 1989. The sampling/testing program shall be conducted and the report submitted to the Director. The intent is to have this program repeated every three years.
3. The permittee shall have a certified operator in responsible charge of the facility in accordance with Georgia State Board Of Examiners For Certification of Water And Wastewater Treatment Plant Operators And Laboratory Analysts Rule 43-51-6.(b).

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The Permittee shall comply with effluent standards or prohibitions established by section 307(a) of the Federal Act and with chapter 391-3-6-.03(5) of the State Rules and may not discharge toxic pollutants in concentrations or combinations that are harmful to humans, animals, or aquatic life. If toxicity is suspected in the effluent, the EPD may require the Permittee to perform any of the following actions:

- a. Acute biomonitoring tests;
- b. Chronic biomonitoring tests;
- c. Stream studies;
- d. Priority pollutant analyses;
- e. Toxicity reduction evaluations (TRE); or
- f. Any other appropriate study.

The EPD will specify the requirements and methodologies for performing any of these tests or studies. Unless other concentrations are specified by the EPD, the critical concentration used to determine toxicity in bio-monitoring tests will be the effluent in-stream wastewater concentration (IWC) based on the representative plant flow of the facility and the critical low flow of the receiving stream (7Q10). The endpoints that will be reported are the effluent concentration that is lethal to 10% of the test organisms (LC10) if the test is for acute toxicity, and the no observed effect concentration (NOEC) of effluent if the test is for chronic toxicity. The Permittee must eliminate effluent toxicity and supply the EPD with data and evidence to confirm toxicity elimination.

§ 430.01 General definitions.

In addition to the definitions set forth in 40 CFR part 401 and 40 CFR 403.3, the following definitions apply to this part:

(a) *Adsorbable organic halides (AOX)*. A bulk parameter that measures the total mass of chlorinated organic matter in water and wastewater.

(b) *Annual average*. The mean concentration, mass loading or production-normalized mass loading of a pollutant over a period of 365 consecutive days (or such other period of time determined by the permitting authority to be sufficiently long to encompass expected variability of the concentration, mass loading, or production-normalized mass loading at the relevant point of measurement).

(c) *Bleach plant*. All process equipment used for bleaching beginning with the first application of bleaching agents (e.g., chlorine, chlorine dioxide, ozone, sodium or calcium hypochlorite, or peroxide), each subsequent extraction stage, and each subsequent stage where bleaching agents are applied to the pulp. For mills in subpart E of this part producing specialty grades of pulp, the bleach plant includes process equipment used for the hydrolysis or extraction stages prior to the first application of bleaching agents. Process equipment used for oxygen delignification prior to the application of bleaching agents is not part of the bleach plant.

(d) *Bleach plant effluent*. The total discharge of process wastewaters from the bleach plant from each physical bleach line operated at the mill, comprising separate acid and alkaline filtrates or the combination thereof.

(e) *Chemical oxygen demand (COD)*. A bulk parameter that measures the oxygen-consuming capacity of organic and inorganic matter present in water or wastewater. It is expressed as the amount of oxygen consumed from a chemical oxidant in a specific test.

(f) *Elemental chlorine-free (ECF)*. Any process for bleaching pulps in the absence of elemental chlorine and hypochlorite that uses exclusively chlorine dioxide as the only chlorine-containing bleaching agent.

(g) *End of the pipe*. The point at which final mill effluent is discharged to waters of the United States or introduced to a POTW.

(h) *Fiber line*. A series of operations employed to convert wood or other fibrous raw material into pulp. If the final product is bleached pulp, the fiber line encompasses pulping, de-knotting, brownstock washing, pulp screening, centrifugal cleaning, and multiple bleaching and washing stages.

(i) *Minimum level (ML)*. The level at which the analytical system gives recognizable signals and an acceptable calibration point. The following minimum levels apply to pollutants in this part:

Pollutant	Method	Minimum level
2,3,7,8-TCDD	1613	10 pg/L ^a
2,3,7,8-TCDF	1613	10 pg/L ^a
Trichlorosyringol	1653	2.5 ug/L ^b
3,4,5-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,6-Trichlorocatechol	1653	5.0 ug/L ^b
3,4,5-Trichloroguaiacol	1653	2.5 ug/L ^b
3,4,6-Trichloroguaiacol	1653	2.5 ug/L ^b
4,5,6-Trichloroguaiacol	1653	2.5 ug/L ^b
2,4,5-Trichlorophenol	1653	2.5 ug/L ^b
2,4,6-Trichlorophenol	1653	2.5 ug/L ^b
Tetrachlorocatechol	1653	5.0 ug/L ^b
Tetrachloroguaiacol	1653	5.0 ug/L ^b
2,3,4,6-Tetrachlorophenol	1653	2.5 ug/L ^b
Pentachlorophenol	1653	5.0 ug/L ^b
AOX	1650	20 ug/L ^b

^aPicograms per liter.

^bMicrograms per liter.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
4244 International Parkway, Suite 110
Atlanta, Georgia 30354

FACT SHEET

APPLICATION FOR
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
TO WATERS OF THE STATE OF GEORGIA

Application No. GA0003620

Date March 31, 2009

1. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant

Rayonier Performance Fibers, LLC
P.O. Box 2070
4470 Savannah Highway
Jesup, Georgia 31598

b. Description of Applicant's Operation

Pulp and Paper Mill, produces market bleach kraft and dissolved kraft.

c. Production Capacity of Facility

1819 A.D. tons/day

d. Applicant's Receiving Waters

Altamaha River

A map showing the location of the discharge is located in the application.

e. Description of Existing Pollution Abatement Facilities

Screening, Primary Clarification, Nutrient Addition, and Aeration Basin.

f. Description of Discharges (as reported by applicant)

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Long Term Average Flow	-	57.15 mgd
Average Winter Temperature	-	25 °C
Average Summer Temperature	-	32 °C 89.6 °F
pH Range (std. units)	-	7.6 - 8.4

Pollutants which are present in significant quantities or which are subject to effluent limitation are as follows:

<u>Effluent Characteristic</u>	<u>Reported Value</u>
BOD ₅	62 mg/l
Total Suspended Solids (TSS)	88 mg/l
Fecal Coliform (highest 30-day avg)	2 CFU/100ml

2. PROPOSED EFFLUENT LIMITATIONS

Note: Effluent limits remain unchanged for BOD₅, TSS, and dioxin from the previous permit.

Serial 001 and 002 Combined - Treated Process and Sanitary Wastewater

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6 - 9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
BOD ₅	
May 1 – November 30	22,300 lbs/day Avg. Daily 33,450 lbs/day Max. Daily
December 1- April 30	32,000 lbs/day Avg. Daily 48,000 lbs/day Max. Daily
TSS	42,010 lbs/day Avg. Daily 77,600 lbs/day Avg. Daily
Dioxin (2,3,7,8-TCDD)	0.000153 µg/l

Serial 003 - Storm Water Runoff

Permitted Maximum Temperature	N/A
Permitted pH Range (std. units)	6-9

<u>Effluent Characteristic</u>	<u>Discharge Limitation</u>
TSS	Only 10% of Effluent limit

Note: Discharge scenarios are given in Page 2 of the permit, following the table of limitations.

Serial 004 – Bleach Plant Discharge (Internal Waste Stream)

Chloroform	12.54 lbs/day Max. Daily 7.502 lbs/day Avg. Daily
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Various Compounds listed with limits below the minimum detection levels (ML).

3. MONITORING REQUIREMENTS

The applicant will be required to monitor regularly for flow and those parameters limited in Section 2 above with sufficient frequency to ensure compliance with the permit conditions. Frequency, methods of sampling, and reporting dates will be specified in the final permit.

4. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

N/A

5. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

See Part III, Special Requirements of NPDES permit, attached.

6. WATER QUALITY STANDARDS AND EFFLUENT STANDARDS APPLIED TO THE DISCHARGE

Code of Federal Regulations (Title 40 CFR Part 430 Subpart A – “Dissolving Kraft Subcategory and Subpart B- “Bleached Papergrade Kraft and Soda Subcategory”) Effluent Guidelines

The Altamaha River is classified as fishing. The effluent BOD₅ limitations were derived to meet this classification.

Limitations for dioxin (2,3,7,8-TCDD) have been imposed on the discharge utilizing the 10⁻⁵ human health risk level concentration at average stream flow conditions. These levels are established in Chapter 391-3-6-.03(5) of the Georgia Rules and Regulations for Water Quality Control (Revised July 2000). The existing permit limit for dioxin was more stringent than the computed value of 0.00017 µg/l based upon stream calculations.

7. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

a. Comment Period

The Georgia Environmental Protection Division (EPD) proposes to issue an NPDES permit to this applicant subject to the effluent limitations and special conditions outlined above. These determinations are tentative.

Interested persons are invited to submit written comments on the permit application or on EPD's proposed determinations to the following address:

Georgia Environmental Protection Division
4220 International Parkway
Suite 101
Atlanta, Georgia 30354

All comments received prior to expiration of the public notice period will be considered in the formulation of final determinations with regard to this application.

b. Public Hearings

Any applicant, affected state or interstate agency, the Regional Administrator of the U. S. Environmental Protection Agency (EPA) or any other interested agency, person or group of persons may request a public hearing with respect to an NPDES permit application if such request is filed within thirty (30) days following the date of the public notice for such application. Such request must indicate the interest of the party filing the request, the reasons why a hearing is requested, and those specific portions of the application or other NPDES form or information to be considered at the public hearing. The Director shall hold a hearing if he determines that there is sufficient public interest in holding such a hearing. If a public hearing is held, notice of same shall be provided at least thirty (30) days in advance of the hearing date.

In the event that a public hearing is held, both oral and written comments will be accepted; however, for the accuracy of the record, written comments are encouraged. The Director or his designee reserves the right to fix reasonable limits on the time allowed for oral statements and such other procedural requirements as he deems appropriate.

Following a public hearing, the Director, unless he should decide to deny the permit, may make such modifications in the terms and conditions of the proposed permit as may be appropriate and shall issue the permit. Notice of issuance or denial will be circulated to those persons or groups who participated in the hearing; and to those persons or groups who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of the application for permit.

c. Contested Hearings

Any person who is aggrieved or adversely affected by the issuance or denial of a permit by the Director of EPD may petition the Director for a hearing if such petition is filed in the office of the Director within thirty (30) days from the date of notice of such permit issuance or denial. Such hearing shall be held in accordance with the EPD Rules, Water Quality Control, subparagraph 391-3-6-01.

Petitions for a contested hearing must include the following:

1. The name and address of the petitioner;
2. The grounds under which petitioner alleges to be aggrieved or adversely affected by the issuance or denial of a permit;
3. The reason or reasons why petitioner takes issue with the action of the Director;
4. All other matters asserted by petitioner which are relevant to the action in question.

d. Issuance of the Permit When No Public Hearing is Held

If no public hearing is held, and, after review of the written comments received, the Director determines that a permit should be issued and that his determinations as set forth in the proposed permit are substantially unchanged, the permit will be issued and will become final in the absence of a request for a Contested Hearing. Notice of issuance or denial will be circulated to those persons who submitted written comments to the Director on the proposed permit within thirty (30) days from the date of the public notice of such proposed permit.

If no public hearing is held, but the Director determines, after a review of the written comments received, that a permit should be issued but that substantial changes in the proposed permit are warranted, public notice of the revised determinations will be given and written comments accepted in the same manner as the initial notice of application was given and written comments accepted pursuant to EPD Rules, Water Quality Control, subparagraph 391-3-6-.06(7)(b). The Director shall provide an opportunity for public hearing on the revised determinations. Such opportunity for public hearing and the issuance or denial of a permit thereafter shall be in accordance with the procedures as are set forth above.

Permit Rationale						
			Percent Dissolving	Percent Bleached	Dissolving ADT per Day	Bleached ADT per Day
		ADT / Day	Kraft	Kraft	Day	Day
		1819.5	50.2%	49.8%	913.389	906.111
Dioxin (2,3,7,8 - TCDD)			Human Health Criteria -		0.0000012	ug/liter
Altamaha River Avg Flow			8965.5 MGD			
Plant Avg Daily Flow			57.15 MGD			
Dilution Factor:			141.08594			
Dioxin Calc'd Limit			0.0001693 ug/l			
Existing Limit is lower-			0.000153 ug/l			
Chloroform			(FACTOR)			
	Pounds per klbs	Pounds per Ton	Pounds per Ton			
	0.00692	2000	0.01384	Max	12.540576	lbs/day
	0.00414	2000	0.00828	Avg	7.5025991	lbs/day
The Waste Load Allocation Sheet is attached for BOD and TSS.						

are flow

$$\frac{57.15 \text{ MGD}}{0.646 \text{ MGD}} = 88.46$$

Process water flows

001 5.25 MGD
4.75 MGD

002 24.53 MGD
21.41 MGD
55.94 MGD

Other flows
Sanitary 0.02 + 0.09 = 0.11
Runoff 0.22 + 1.28
+ 2.39 +
1.10 + 0.18 = 5.16

LTF Daily Ave

10.2 13.3
46.50 53.7
56.70 67.0

Stream flow

are

$$\frac{8965.5}{0.646 \text{ MGD}} = 13,918.48 \text{ cfs}$$

$$\text{mean annual stream flow} = \frac{13,900 \text{ cfs}}{1 \text{ cfs}} = 8979.4 \text{ MGD}$$

7910

$$\frac{2250 \text{ cfs}}{1 \text{ cfs}} = 1,453.5 \text{ MGD}$$

$$DF_{7910} = \frac{7910}{DM_q} = \frac{1453.5}{43.257.15} = 33.59$$

National Pollutant Discharge Elimination System Waste Load Allocation Form

Part I: Background Information

WLA Request Type: Reissuance ☒ Expansion ☐ Relocation ☐ New Discharge ☐
 Facility Name: Rayonier Performance Fibers LLC County: Wayne WQMU: 0692
 NPDES Permit No.: GA0003620 Expiration Date: December 31, 2007 Outfall Number: 001 and 002
 Receiving Water: Altamaha River River Basin: Altamaha 10-Digit HUC: 0307010604
 Discharge Type: Domestic ☐ Industrial ☒ Both ☐ Proportion (D:I): Flow(s) Requested (MGD): 60-70 (average)
 Industrial Contributions Type(s): pulp, paper and paperboard production
 Treatment Process Description: activated sludge, extended aeration
 Additional Information: (history, special conditions, other facilities):
 Requested by: AWL Title: Program: PCEP
 Telephone: Date:

Part II: Receiving Water Information

Receiving Water: Altamaha River Designated Use Classification: Fishing
 Integrated 305(b)/303(d) List: Yes ☐ No ☒ Partial Support: ☐ Not Support: ☐ Criteria:
 Total Maximum Daily Load: Yes ☐ No ☒ Parameter(s) WLA Complies with TMDL Yes ☐ No ☐

Part III: Water Quality Model Review Information

Model Type: Uncalibrated ☐ Calibrated ☒ Verified ☐ Cannot be Modeled ☐ Model Length (mi): 110.7
 Field Data: None ☐ Fair ☐ Good ☒ Excellent ☐
 Model and Field Data Description: Steady-state dissolved oxygen Georgia DOSAG model.
 Critical Water Temperature: (°C): 28.5 Drainage Area (mi²): Approx. 13600 7Q10 streamflow at discharge (cfs): Approx. 2250
 7Q10 Yield (cfs/mi²): Velocity (range fps): 0.5 - 3.2 1Q10 streamflow at discharge (cfs): Approx. 2200
 Effluent Flow Rate (cfs): 108 7Q10 IWC (%): 4.6 Mean annual streamflow at discharge (cfs): Approx. 13900
 Slope (range - fpm): 0.04 - 1.3 K1: 0.1 K3: 0.05 Escape Coef. (ft⁻¹): 0.025 K2 (range):
 SOD: f-Ratio (BOD₅/BOD_u): 4.5 Background Hardness (mg/L as CaCO₃): 25
 The predicted minimum dissolved oxygen concentration is 5.02 mg/L, occurring 40 miles downstream from the discharge.
 The modeling parameters and results cited above are from the modeling analysis for the original waste load allocation. No review of, or revisions to, the original modeling analysis or the waste load allocation were made.

Part IV: Recommended Permit Limitations and Conditions (lbs/day as a daily average except as noted)

Rationale: Same as current ☒ Revised ☐ New ☐ Note that monitoring of total phosphorus is recommended.
 Location: Altamaha River

Period	Effluent Flow Rate (MGD)	BOD ₅	TSS	pH (std. units)	Total Phosphorus
May - November	Monitor	22,300	42,010	6.0 - 9.0	Monitor
December - April	Monitor	32,000	42,010	6.0 - 9.0	Monitor

RECEIVED
OCT 15 2008
GEORGIA EPD WATERSHED PROTECTION
ENFORCEMENT, COMPLIANCE & ENFORCEMENT

Additional Comments:

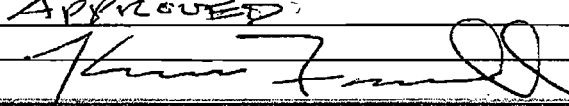
*The limits are for 001 and 002 combined.

Priority pollutant permit limits and aquatic toxicity testing requirements are to be determined by PCEP.

Current permit requirements include a 120-day long-term biochemical oxygen demand (BOD₁₂₀) test once a year, monitoring of color (weekly), and in-stream monitoring of BOD₅, dissolved oxygen, pH, and water temperature twice a month from May through November.

Prepared by: Larry Guerra LCG Date: 10/07/2008 Reviewed by: Andy Kao HXK Date: 10/07/08

Part V: Assistant Branch Chief Comments

APPROVED:
 Kevin Farrell  Date: 10/14/08

BASIC REVIEW CHECKLIST

NPDES Number GA0003620

State Contact (Name & Phone #) _____

Facility Name Rayonier

Section 1 Basic Review Preliminary Screen		Yes	No	Comments
<i>(Unless specifically requested otherwise, EPA will be reviewing permits listed on the Priority Permit lists, majors, minor primaries, CAFOs, Power Plants, Pulp and Paper, and permits requested by Enforcement/Others for review)</i>				
NPDES Permit Review	Is this permit a major facility (or should be)?	✓		
	Is this permit a minor primary industrial facility?		✓	
	Is this permit listed on the Priority Permit List?		✓	Use flowchart "WHAT TYPE OF REVIEW WILL BE GIVEN TO A FACILITY" to determine level of review.
	Is this a new or expanding facility?		✓	
	Has a map been prepared to show any downstream impairment?		✓	If yes, include map.

Section 2 Basic Review Review of Impairment <i>(List all pollutants of concern that might be discharged by the facility that are going to impaired streams. If not applicable, list as "N/A.")</i>	TMDL?		Adequate permit condition?		Comments <i>(Note whether permit has included the appropriate implementation of the TMDL via limit or other condition. Where TMDL has not been developed/approved, for that pollutant, note whether adequate permit condition exists such as monitoring, limits, or other conditions have been applied based on EPA's 1999 policy and other supplemental State policies.)</i>
	Yes	No	Yes	No	
N/A					

Detailed Review	Yes	No	Comments
Is Detailed Review needed?	✓		If yes, complete Detailed Review Checklist and attach to the Basic Review Checklist.

ACTION <i>Complete Basic Review and Detailed Review (as needed) and note action taken. Be sure to update tracking system.</i>	RESPONSE <i>Included hard copy in file</i>		Comments
	Sent email (date)	Sent letter (date)	
Waived			see attached email message from Michael to Dominic Wetherall dated 4/30/09. Sign & Date <u>Dominic Wetherall 4/28/09</u>
No Comment			
Comments	✓ 4/30/09		
Interim Objection	XXXXXX		
Objection	XXXXXX		

DETAILED REVIEW of DRAFT PERMIT

NPDES Number GA0003620

Facility Name Rayonia Performance Fiber

Information Completeness	Yes	No	Comments
Correct application?	✓		Type? <u>2e</u>
Complete application? [significant information to determine reasonable potential analysis]	✓		
Fact Sheet/ Rationale?	✓		
If new or expanded discharge, was anti-degradation analysis done?		✓	
Is there a WQ variance (including WER) in the permit? If yes, send to Standard's Section for review.		✓	

Application Review & Reasonable Potential	Yes	No	Comment/Data
7Q10			
For industrials: Are pollutants noted as "Believed Absent" reasonable?	✓		
For municipals: Are the screened pollutants values reasonable?	N/A		
For municipals: Have 3 pollutant analyses been performed within last 4-5 years?	N/A		
For municipals: Has whole effluent toxicity data been included?	N/A		
Did state follow its "Reasonable Potential" procedures?			
Do any EPA criteria apply?		✓	List pollutants:
Are proper minimum levels of detection indicated?	✓		

Review of Permit	Yes	No	Comments
Is "Boilerplate" complete?	✓		122.41 and 122.42
Are all outfalls indicated in the application covered in the permit?	✓		
Have any loadings been increased since the previous permit? If yes, explain.		✓	
Have any limits been deleted, or made less stringent, since the previous permit? If yes, has backsliding been addressed?		✓	
Are metals included in terms of "total recoverable"?	N/A		
Appropriate compliance schedule?	✓		122.47
All monitoring requirements at least 1/year?	✓		122.44(I)(1(ii))
Are the monitoring frequencies reasonable and sampling locations included?	✓		
Toxicity language?	✓		If yes, complete WET Checklist and attach
Are there any wastestreams that need internal limits?	✓		Bleach Plant
Ambient monitoring required? If so, which pollutants? Also indicate upstream or downstream.			Fish Tissue Study

IF=141

001 - Process water
25 mg/l
 AL = 710 μ sl
 dr = 1.3 μ sl
 H₂ = 12 μ sl

002
64.9 mg/l
 Pb 3.3 μ sl
 Ni 18 μ sl

08-04-2008

Review of Industrial Permit	Yes	No	Comments
Applicable Effluent Guideline?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Are BMPs included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
For continuous discharges, are daily maximum and monthly average limits included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Review of Municipal Permit	Yes	No	Comments
Secondary treatment requirements included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	133
Nutrients included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	___ Limits included ___ Monitoring only
For continuous dischargers, are weekly average and monthly average limits included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	122.45(d)(2)
Do pretreatment procedures apply?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	122.44(j) & 403

Fact Sheet	Yes	No	Comments
Location of facility included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Does discharge impact a neighboring state?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Type of product included (if industrial permit)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Long-term production included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Basis for permit limits?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Calculations included? Correct flows? Production values?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Best Professional Judgment justification included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Any applicable seasonal limits justified?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Final Decision Procedures included?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Note any other additional comments below:

RP for metals was OK

RP for dioxin included

BAT limits for BK pulp included per BPT

Initial and date: Hamphill

* Wet tests were done outside of the permit.

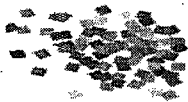
WET PERMITTING CHECKLIST

Facility Name Peyonia
Reviewer Kevin A. Dele

NPDES No. GA0003620
Review Date 4/28/09

1. Most recent methods manual specified or referenced? ☒ yes ☐ no
 - acute manual - EPA 821/R-02/012 (October 2002)
 - freshwater chronic manual - EPA/821/R-02/013 (October 2002)
 - saltwater chronic manual - EPA/821/R-02/014 (October 2002)
2. Appropriate reference toxicant test required? ☒ yes ☐ no
 - acute reference toxicants should be run w/ acute tests
 - chronic reference toxicants should be run w/ chronic tests
3. Appropriate test species required? ☒ yes ☐ no
 - where chronic tests are run, in general use saltwater sp. for freshwater discharges to saline waters
4. Test acceptability criteria & sample collection requirements specified/referenced and test required to be re-run if not met? ☐ yes ☐ no N/A
 - acute tests - control survival must equal/exceed 90%
 - chronic tests - control survival must equal/exceed 80%
 - fathead chronic test - see Sec. 11, Table 1 (pg. 76) of the freshwater chr. methods manual
 - Ceriodaphnia chronic test - see Sec. 13, Table 1 (pg. 165) of the freshwater chr. methods manual
 - Menidia chronic test - see Sec. 13, Table 1 (pg. 179) of the saltwater chronic methods manual
 - Mysid chronic test - see Sec. 14, Table 3 (pg. 242) of the saltwater chronic methods manual
 - elapsed time from sample collection to test initiation must not exceed 36 hr.
5. Results from multi-concentration acute or chronic tests evaluated for concentration-response relationship? ☒ yes ☐ no ☐ N/A
6. Results from chronic WET tests that use hypothesis testing (NOEC) required to meet variability criteria (percent minimum significant difference - PMSD)? ☒ yes ☐ no ☐ N/A
7. If monitoring only required, permit contains a reopener to include a WET limit based on "failure" of a test? ☐ yes ☐ no ☒ N/A
8. WET limit based on appropriate facility design flow and low flow critical condition? ☒ yes ☐ no ☐ N/A
9. If limits required, any routine/additional test failure is a permit violation? ☐ yes ☐ no ☒ N/A
10. If limits required and failure of a routine test occurs, the permittee is required to conduct additional monitoring and/or ultimately a TIE/TRE? ☐ yes ☐ no ☒ N/A

11. Are there any allowed changes to WET procedures or methods that weren't sent to EPA for review and approval first? ☐ yes ☐ no



Karrie-Jo
Shell/R4/USEPA/US

04/30/2009 01:47 PM

To dominic_weatherill@dnr.state.ga.us

cc Pamala Myers/R4/USEPA/US@EPA, Mark
Nuhfer/R4/USEPA/US@EPA, Karrie-Jo
Shell/R4/USEPA/US@EPA

bcc

Subject EPA comments on the Rayonier permit, GA 0003620

Dominic,

EPA has two comments at this time.

1) The AOX limits on page 2 of 13 are inappropriate for determining compliance. The AOX limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

2) Outfall 004 is an internal outfall for the bleach plant. The limits are based on the BPJ of the permit writer using EPA's *Background Information Document for Permit Writers: Dissolving Kraft and Dissolving Sulfite Pulp Mills*, dated May 2007. The internal limit for chloroform is inappropriate for determining compliance. The limits are in terms of the EPA effluent guideline factors, which are in units of kg/1000kg of air dried unbleached pulp. The permit should contain the calculated mass limits based on the EG factor times the estimated unbleached pulp production.

Below is a summary of my review:

The facility is a dissolving mill that makes dissolving kraft and market bleached kraft. The average daily flow for the mill is approximately 88.46 cfs (57.15 MGD)

The receiving stream is the Altamaha River, which has a 7Q10 of 2250 cfs (1453.5 MGD), a 1Q10 of 2200 cfs (1421.2 MGD), and an average annual of approximately 13,900 cfs (8,979.4 MGD). The Altamaha River is not listed on GA's 303d list and has no TMDLs.

The application reported the following effluent concs for POCs:

metal	outfall 001	outfall 002
arsenic	ND	ND
cadmium	ND	ND
copper	ND	ND
lead	ND	ND
nickel	ND	ND
selenium	ND	ND
Zinc	23 ug/l	47 ug/l
phenols	50 ug/l	98 ug/l
2,3,7,8-TCDD:less than 0.000003325 ug/l (ave for outfalls 001 and 002)		

Per GA's WQS regs, the following are the flows to be used in the RP analysis:

flow	Dilution Factor
1Q10 for acute	24.86
7Q10 for chronic	25.43
annual ave for 2,3,7,8-TCDD	157.1

The metals all showed no RP to exceed the applicable instream WQS. For 2,3,7,8-TCDD, the calculated effluent limit conc is:

Human Health criteria x DF (based on the annual ave flow) = $0.0000012 \text{ ug/l} \times 157.1 = 0.00018852 \text{ ug/l}$.
The existing permit limit is 0.000153 ug/l, which is more stringent than the calculated limit, so the existing limit is being retained to avoid anti-backsliding issues.

GA has no numerical WQS for color. However, GA EPD issued a Consent Order, no. EPD-WQ-4837, requiring the mill to install equipment in order to reduce the effluent color. Paragraphs 1 through 6 of the Order are incorporated in the permit by reference. Rayonier will have 96 months (with interim compliance limits) to reduce the annual average effluent color 115% of the average of the color discharge from the immediately proceeding 12 months, not to exceed 250 US tons/day. The permit also requires the mill to monitor all 17 congeners of 2,3,7,8-TCDD and furan in ambient fish tissue in the receiving waterbody.

The BOD and TSS limits remain unchanged from the current permit.

Karrie-Jo Robinson-Shell, P.E.

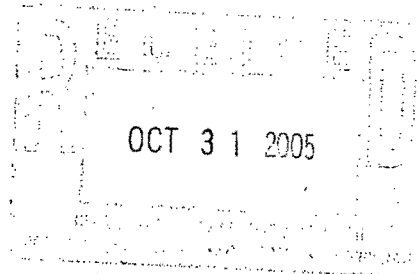
Rayonier

Performance Fibers

Jesup Mill

October 28, 2005

Michael S. Creason
Industrial Waste Unit, Water Protection Branch
Environmental Protection Division
Georgia Department of Natural Resources
4220 International Parkway, Suite 101
Atlanta, GA 30354



SUBJECT: NPDES Permit No. GA 0003620: Renewal Application

Dear Mr. Creason,

Enclosed is Rayonier's application to renew the NPDES permit for the Jesup Pulp mill. The current permit expires on April 30, 2006. This application is being filed 180 days prior to the permit expiration date as required.

Enclosed are completed application Forms 1 and 2C, the results of the whole effluent toxicity (WET) testing, and an attachment containing supplemental information in support of the permit application.

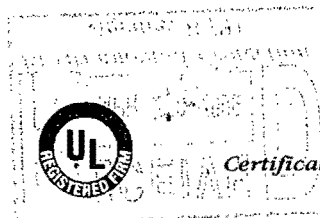
I will be contacting you within the next two weeks to schedule a meeting to review the application and the supporting documentation. If you have any questions or need additional information in the meantime, please contact me at (912) 427-5280.

Sincerely,

Gerald DeWitt
Manager, Environmental Affairs

Cc: W. M. Burch
D. B. Dolloff
M. R. Herman
D. W. Rogers
C. E. Yetter

Registered to ISO 9001:2000



Certificate No. A2072

4470 Savannah Highway • P.O. Box 2070 • Jesup, GA 31598-2070
Telephone (912) 427-5000

Supplemental Information in Support of NPDES Permit No. GA 0003620 Renewal Application

Incorporation of individual permit limits for each outfall:

Rayonier agreed with the Altamaha Riverkeeper to request individual permit limits for each outfall. In this permit application, Rayonier is formally requesting these individual permit limits. As noted in the paragraph titled "Stormwater", Rayonier is requesting permission to use a third outfall for stormwater discharge. Therefore, this permit modification is to incorporate individual permit limits on all three outfalls into its NPDES Permit No. GA0003620. Rayonier proposes the following conditions be included in the permit:

1. Mass limitations apply to the sum of the discharge from Outfalls 001, 002, and 003. The total effluent flow shall be calculated as the sum of outfalls 001, 002, and 003 with continuous recorders such that the total flow to the river is accounted for.
2. The facility may divide the discharge of mass limited pollutants between Outfalls 001, 002, and 003 in any proportion so long as the total mass discharge does not exceed 100% of the total mass limit.

Incorporation of narrative water quality standards

Rayonier agreed with the Altamaha Riverkeeper to request a permit modification to incorporate the narrative water quality standards into its NPDES Permit No. GA0003620. Rayonier proposes the following:

1. Retain the existing permit condition: "There shall be no discharge of floating solids or visible foam in other than trace amounts."
2. Add the following text consistent with 391-3-6-.05(c) Ga. Comp. R. & Regs.: "All waters shall be free from material related to the permittee's industrial discharge that produces turbidity, color, odor, or other objectionable conditions which interfere with legitimate water uses."

Wastewater Treatment System Groundwater Monitoring Plan

A proposed plan for the installation and continued monitoring of groundwater monitoring wells surrounding the wastewater treatment system was submitted to the Permitting Compliance and Enforcement Program of the Water Protection Branch on Friday, October 28, 2005. Well installation is scheduled for late 2005 with completion and initial detection monitoring to establish background concentrations by early 2006.

The plan was prepared by Schnabel Engineering following the criteria in the Georgia DNR Manual for Groundwater Monitoring. The plan calls for monitoring both new monitoring wells that are to be installed up gradient and down gradient of the wastewater treatment system surface impoundments as well as existing landfill groundwater monitoring wells. The plan details

system design, well installation, detection monitoring, assessment monitoring, and corrective action.

Effluent Limits for Chlorinated compounds

On April 15, 1998 EPA promulgated "National Emission Standards for Hazardous Air Pollutants for Source Category: Pulp and Paper Production; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards: Pulp and Paper, and Paperboard Category" commonly referred to as the "Cluster Rules." Federal Register Vol. 63. No. 72 pp 18504 – 18751. In this final rule EPA promulgated revised effluent limitations guidelines for the Bleached Papergrade Kraft and Soda (subpart B) and Papergrade Sulfite (subpart E) subcategories. The agency committed to revising effluent limitations for the remaining subcategories in stages. The Dissolving Kraft subcategory (subpart A) was assigned to category III and, though given a high priority by EPA, final rule-making was deferred. Federal Register Vol. 63. No. 72 p. 18512.

Since 1998 EPA has considered developing and established effluent limitation guidelines for the Dissolving Kraft subcategory. However, in the 2004 Effluent Guidelines Program Plan, EPA did not propose additional rulemaking for the Pulp, Paper, and Paperboard category further stating that rulemaking was "not the best tool for establishing technology-based limits" for the few facilities in the dissolving pulp subcategory. Federal Register Vol. 69. No. 170. pp 53701 – 53721. In its August 29, 2005 Notice of Availability of 2006 Preliminary Effluent Guidelines Program Plan, EPA selected the Pulp, Paper and Paperboard point source category for a detailed study. FR Vol. 70. No. 166 p. 51051. In the same notice, EPA announced that the Dissolving Kraft and Dissolving Sulfite subcategories were not included in the study because: "[a]s discussed in the 2004 annual review, EPA believes that because of the small number of facilities, effluent guidelines rulemaking is not appropriate at this time for these subcategories. Instead of an effluent guidelines rulemaking EPA will provide site-specific permit support to state permit writers as they develop NPDES permits for the four facilities in these two subcategories." p. 51051.

As the Georgia EPD applies best professional judgment to developing technology based effluent limits for this NPDES permit, Rayonier offers the following input:

1. The Jesup mill employs the kraft pulping process to manufacture absorbent pulp and chemical cellulose called "dissolving pulp" for a variety of specialty applications. Unlike kraft paper and pulp mills, the process at Jesup produces nearly pure cellulose that is used by our customers in products such as textiles, plastics, food, and pharmaceuticals. The cellulose from the Jesup mill is used to manufacture rayon fiber, plastic tool handles, tire cord, sausage casings, and a variety of other products. The process to make pure cellulose is unique to the dissolving kraft industry. Even as compared to the three other U.S. dissolving pulp mills, the Jesup mill is unique because it manufactures chemical cellulose from both hard and soft woods. In the preamble to the final Cluster Rule, EPA recognized that "final effluent limitations guidelines and standards for [dissolving pulp mills] will be based on different technologies than those that served as the basis for the

proposed limitations and standards [for bleached papergrade kraft mills.]" FR Vol. 63, No. 72, p.18513.

2. Beginning in 1993, Rayonier actively participated with EPA and the Pulp, Paper and Paperboard industry to develop the Cluster Rules. During rule development, EPA proposed effluent guidelines based on a variety of pulping and bleaching technologies that reduced the amount of chlorinated organics in pulp mill effluents. Rayonier worked cooperatively with EPA as the agency developed its basis for Best Available Technology economically feasible [BAT] for the dissolving kraft subcategory. EPA personnel responsible for developing effluent guidelines visited the Jesup mill for tours and discussions about the effect of proposed technologies on the manufacturing process, customers' end uses, effluent quality and the economic implications. Ultimately, the agency set effluent guidelines for the Bleached Papergrade Kraft subcategory based on the proposed technologies. In recognition of the unique pulping processes used for manufacturing dissolving pulps, the agency deferred setting guidelines for the Dissolving Pulp subcategory and committed to continue working with the industry to identify an appropriate technology basis for establishing effluent guidelines. [Note: Much of the information provided to EPA contains confidential and proprietary business information and is not available in the public record.]
3. The Cluster Rules proposed effluent guidelines for the Bleached Papergrade Kraft subcategory based on technology and process changes that included: elemental chlorine free [ECF] bleaching achieved with chlorine dioxide substitution, changes to brownstock screening methods, more effective brownstock washing defined by soda loss, extended cooking times in the digester, elimination of hypochlorite, use of oxygen or peroxide bleaching and efficient biological waste water treatment. The technologies that formed the basis for BAT for the Bleached Papergrade Kraft effluent guidelines were not anticipated as the basis for the Dissolving Pulp subcategory. Even so, Rayonier evaluated ECF bleaching, the effects of increased chlorine dioxide substitution, oxygen bleaching, as well as increased cooking times, better brownstock washing and improved screening.
4. As a result of Rayonier's extensive research and pilot scale testing of multiple process alternatives, the mill determined the following:
 - a. ECF bleaching is effective for absorbent materials but not for most specialty cellulose products. Today Rayonier uses ECF bleaching to produce absorbent pulps.
 - b. Chlorine dioxide can be substituted for chlorine in the bleaching process for many dissolving pulp grades while still producing products acceptable to the mill's customers. The mill's average chlorine dioxide substitution rate for the combined production of absorbent materials and specialty cellulose is about 70%.

- c. Hypochlorite can be removed from the bleaching process without negative impacts on products or customer uses. The mill has eliminated the addition of hypochlorite in the bleaching process.
 - d. The mill continues to work to optimize cooking times, washing and screening practices and bleaching process in an effort to reduce chlorinated organics in the effluent.
5. The measures listed in #4, have resulted in the reduction of chlorinated compounds in the final effluent. As a result, although AOX is present in the final effluent, it has been measured at concentrations below the effluent guideline for Bleached Papergrade Kraft Subcategory B mills. Quarterly effluent dioxin tests over the life of the permit have found no detectable 2,3,7,8 TCDD.
6. In light of the above-described research on and implementation of these technologies, Rayonier believes that the Best Available Technology basis for the Jesup mill is demonstrated by the current operation of the mill.

Storm water

In this permit application Rayonier is requesting an additional outfall "003" be permitted for the purpose of discharging storm water from mill property and outlying areas. The purpose of this outfall will be to relieve the mill's #2 aeration basin system (feeding outfall 002) from potentially catastrophic basin levels during extreme rain events. Presently this storm water is subject to settling prior to being routed into the mill's aerated stabilization basins for aerobic treatment. In the future the mill would like the option of discharging its stormwater after settling through an existing but unused outfall. Because a portion of the watershed captured in outfall 003 is located in process areas, the storm water could, in case of a spill or unintentional release, contain dilute mill process wastewater (See block flow diagram from section 2C). Therefore, Rayonier proposes that outfall 003 be subject to the same monitoring provisions as 001 and 002, and that the discharge mass limits described in "Incorporation of individual permit limits for each outfall (bullet two)" of this letter be apportioned across all three outfalls. In practice this outfall will be used primarily during rain and storm events and it is unlikely that any more than 5% of the total mill effluent load will be discharged from this outfall.

Color

Rayonier and the Altamaha Riverkeeper [ARK] agreed to investigate technologies for the reduction of color in Rayonier's discharge. Consistent with the plan, Rayonier researched available technical alternatives for reducing the color discharged in mill effluent, reported the results to ARK, and selected a biological wastewater treatment technology for full-scale testing. The results of the full-scale test were jointly evaluated by ARK and Rayonier. The technology did not effectively remove color from the effluent or perform reliably in the treatment system.

After this initial failure, Rayonier worked to identify additional technologies for color removal. Rayonier observed that on-site compost cells were apparently removing color from wastewater. To investigate the possibility of developing color treatment technology based on these observations, Rayonier sought out experts in research and development of biological treatment technologies and identified a company that specialized in this field. A joint development agreement was negotiated and executed with the identified company. Together with its research partner, Rayonier planned and executed research and bench-scale tests. ARK was apprised of this new research and development effort and kept informed of progress. The results from the bench-scale tests indicated that color could be removed from effluent using micro-organisms that appeared to be contained in the compost cells.

Rayonier attempted to scale up the bench-scale experiments in an on-site pilot plant. ARK visited the mill to observe the pilot work. At the same time Rayonier's research partner performed laboratory pilot plant studies. The results from both the field and laboratory pilot plants were somewhat disappointing because, while color removal was observed, the pilot process did not provide consistent, predictable performance over time. Neither pilot plant reproduced the bench-scale results.

Rayonier, in consultation with its research partner, reviewed the pilot plant results and determined that while there is potential for the technology, the research timeframe for developing the technology would take longer than originally anticipated. Rayonier and ARK met to discuss the results of the bench-scale and pilot plant tests. ARK and Rayonier determined that, in hindsight, the timeline for developing biological treatment technology had been ambitious and future development work would likely take longer than initially anticipated.

Rayonier developed a new research plan and timeline incorporating the lessons learned from the results achieved to date were developed in early 2005. The projected timeline for the research and development of this technology, assuming positive results at each decision point, will extend through 2007, and perhaps beyond. Scale-up, design, engineering and implementation would likely take an additional one to three years after that.

Rayonier is committed to continuing its efforts towards reducing color in the mill's treated effluent and has broadened its approach to look at both treatment technologies and potential process management options. Going forward the mill is working on the following:

- By early 2006 the mill will complete modification to the mill's spill collection and control system. These modifications will capture and recycle additional highly colored waste water streams that currently go to the wastewater treatment system.
- In August 2005 the mill tested a polymer settling aid in the wastewater treatment system for 30 days to determine its effect on color removal. The results were encouraging with respect to color removal. However, the short duration of the trial did not allow the mill to fully evaluate the long term effects of polymer use. These impacts must be evaluated and understood before the mill can determine whether to implement polymer as a treatment option. Beginning in 2006, the mill plans to run a long term trial to evaluate the impacts

to the wastewater treatment system, effectiveness of the treatment under various seasonal operating conditions, impacts to the production process, and operational costs. To determine the seasonal impacts will take one year and will be completed by first quarter 2007. An additional period of up to one year will be needed to assess whether the color contained in the polymer and wastewater treatment solids will leach back out of the compost cells.

- Rayonier is continuing research and development on microbiological treatment of color. At this point the results of bench-scale testing are encouraging. However, we have been disappointed before by technologies that have appeared promising at the bench-scale only to prove unworkable in the field. The next steps in the research process will be small scale pilot tests followed by large scale pilot tests. Rayonier is cautiously optimistic and will continue its research so long as the technology meets the evaluation criteria at each decision point during the research, development, and scale-up phases. The evaluation criteria are: how well the technology works, its potential impact on the environment (both beneficial and harmful), whether the technology affects compliance with water quality standards and environmental regulations, the financial impact of implementing it, the ability of the mill to meet customer requirements, and the costs and impacts of implementing the technology on plant operations, including wastewater treatment and sludge handling.

In light of the completed work and the on-going effort, Rayonier requests that EPD include a permit condition that allows for completion of the studies discussed above and evaluation of the actual color reduction achieved. Thereafter, Rayonier will request a permit modification to include a numeric color limit consistent with research results.

Rayonier proposes the following permit conditions:

- Rayonier shall submit a color reduction work plan to the Department within 90 days of the effective date of the permit. The work plan shall describe the mill's current and proposed research and evaluation efforts to reduce color in the treated effluent. The work plan shall establish a time line and evaluation criteria that the mill will use to select technology or technologies for implementation.
- Rayonier shall provide semi-annual updates describing the on-going research and results thereof.
- Two years from the effective date of the permit, Rayonier will identify a technology or technologies that are capable of consistently and reliably reducing color and meeting the evaluation criteria.
- Two years from the effective date of the permit, Rayonier will apply for a permit modification to incorporate a numeric color limit based on the technology or technologies that are capable of consistently and reliably reducing color and meeting the evaluation criteria described above.

- At the time the permit modification is submitted, the permittee shall also submit a technology implementation plan. The plan shall describe the specific technologies that will be implemented, a time line for implementing them, and the expected date for compliance with the color limit, which shall be no later than three years after the effective date of the permit modification incorporating the color limit.

Other Testing Conducted During This Permit Cycle

Rayonier voluntarily conducted tests that were not required under the mill's NPDES permit. The first study is a "2004 Survey of Mercury Concentration in Fish Tissue Samples Collected from the Altamaha River." The second study is a "Bacteriological Assessment of the Altamaha River Within the Vicinity of Rayonier's Jesup, GA mill." Both studies are attached to this permit application renewal for the agencies review.

Improvements as described in Form 2C Section C., Par IV.

The mill has received Air Quality Permit Amendment No. 2631-305-0001-V-01-4 for the construction and operation of six new aerators and two new curtains, as well as the modifications of the hard pipe to the Enhanced Biological Treatment System – Aeration Basin #1A in order to comply with the provisions of 40 CFR Part 63.447, "Clean Condensate Alternative (CCA)" in lieu of the requirements of 63.443(a)(1)(ii) through (iv). Construction has begun on this project and the project will be installed and in operation prior to the mill's compliance date of 4/15/06.

FORM 1 GENERAL		 U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> <i>(Read the "General Instructions" before starting.)</i>		I. EPA I.D. NUMBER <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">S</td> <td colspan="3"></td> <td style="width: 5%;">T/A</td> <td style="width: 5%;">C</td> </tr> <tr> <td>F</td> <td colspan="3">GA0003620</td> <td></td> <td>D</td> </tr> <tr> <td>1</td> <td>2</td> <td>13</td> <td>14</td> <td>15</td> <td></td> </tr> </table>				S				T/A	C	F	GA0003620				D	1	2	13	14	15	
S				T/A	C																				
F	GA0003620				D																				
1	2	13	14	15																					
LABEL ITEMS I. EPA I.D. NUMBER III. FACILITY NAME V. FACILITY MAILING LIST VI. FACILITY LOCATION		PLEASE PLACE LABEL IN THIS SPACE		GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorization under which this data is collected.																					
II. POLLUTANT CHARACTERISTICS																									
INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms .																									
SPECIFIC QUESTIONS		MARK "X"		SPECIFIC QUESTIONS		MARK "X"																			
		YES	NO	FORM ATTACHED			YES	NO	FORM ATTACHED																
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
C. Is this facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. Is this proposal facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
G. Do you or will you inject at this facility any produced water other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>																
III. NAME OF FACILITY		C. SKIP 15-16-29 30 69																							
IV. FACILITY CONTACT		A. NAME & TITLE (last, first, & title) Gerald A. DeWitt B. PHONE (area code & no.) 912 427 5280																							
V. FACILITY MAILING ADDRESS		A. STREET OR P.O. BOX P. O. Box 2070 B. CITY OR TOWN Jesup C. STATE GA D. ZIP CODE 31598																							
VI. FACILITY LOCATION		A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER 4470 Savannah Highway B. COUNTY NAME Wayne C. CITY OR TOWN Jesup D. STATE GA E. ZIP CODE 31545 F. COUNTY CODE																							

VII. SIC CODES (4-digit, in order of priority)

A. FIRST				B. SECOND			
C	2611	(specify)		C		(specify)	
7		manufacture of chemical cellulose		7			
15				15			
C. THIRD				D. FOURTH			
C		(specify)		C		(specify)	
7				7			
15				15			

VIII. OPERATOR INFORMATION

A. NAME				B. Is the name listed in Item VII-A also the owner?			
C	Rayonier Performance Fibers LLC			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
8							
18							
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other," specify)				D. PHONE (area code & no.)			
F = FEDERAL	M = PUBLIC (other than federal or state)	P	(specify)	C	912	427	5000
S = STATE	O = OTHER (specify)			A			
P = PRIVATE				15			

E. STREET OR PO BOX				F. CITY OR TOWN				G. STATE		H. ZIP CODE		IX. INDIAN LAND	
4470 Savannah Highway				Jesup		GA		31545		Is the facility located on Indian lands?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)				D. PSD (Air Emissions from Proposed Sources)							
C	GA0003620			C							
9				9							
15				15							
B. UIC (Underground Injection of Fluids)				E. OTHER (specify)				(Specify)			
C				C	2631-305-0001-V-01-0			Title V Part 70			
9				9	2631-305-0001-V-01-1						
					2631-305-0001-V-01-2						
					2631-305-0001-V-01-3						
					2631-305-0001-V-01-4						
15				15							
C. RCRA (Hazardous Wastes)				E. OTHER (specify)				(Specify)			
C				C	151-0001			Groundwater Use Solid Waste Handling Drinking Water Radioactive Material License			
9				9	151-012D(L)(I)						
					PG3050006						
					381-1						
15				15							

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Manufacturer of dissolving pulp and bleached kraft pulp manufactured by the prehydrolyzed kraft and kraft processes respectively.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)

Mike Burch, Vice-President and General Manager

B. SIGNATURE

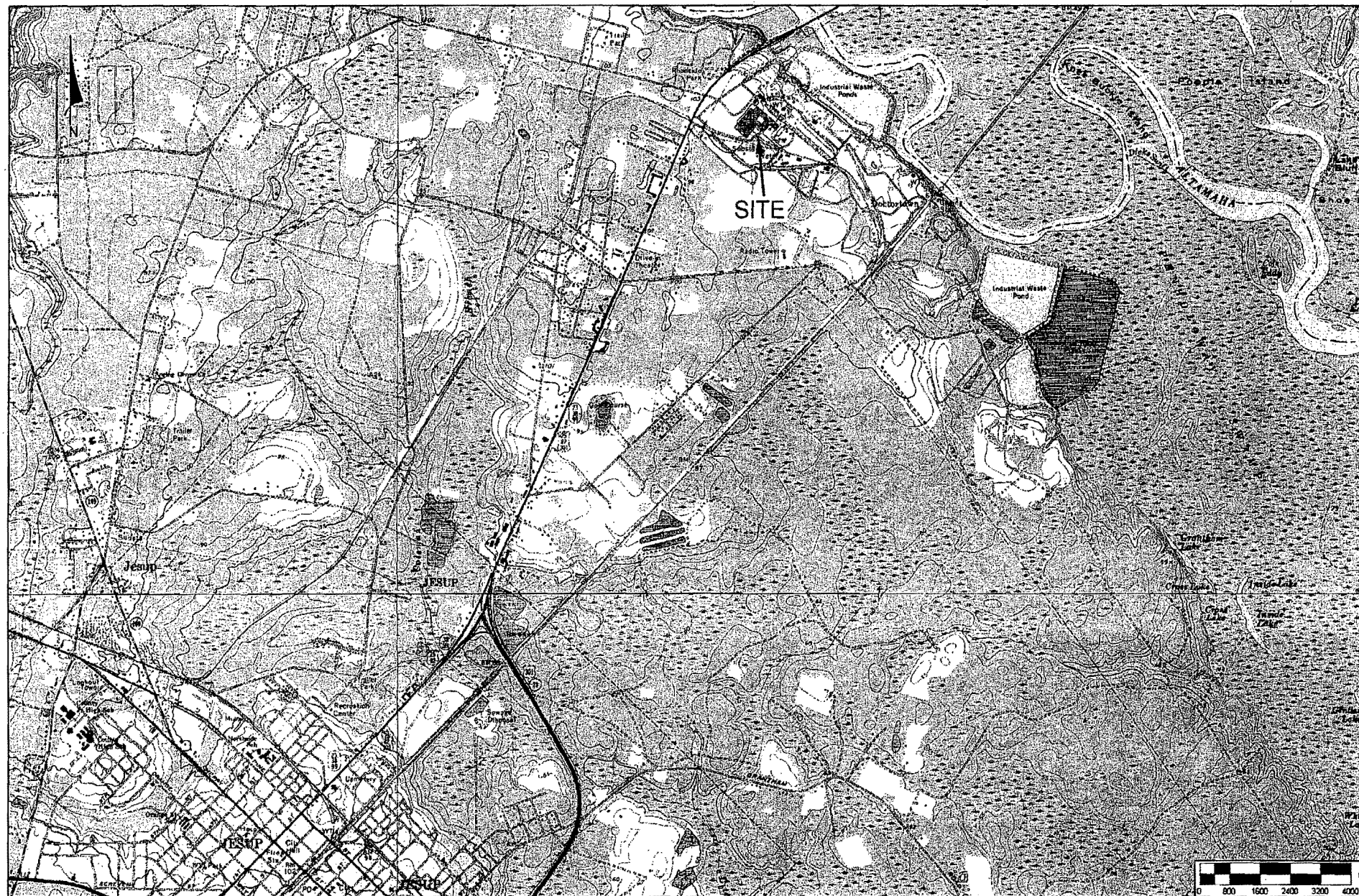
Mike Burch

C. DATE SIGNED

10/28/05

COMMENTS FOR OFFICIAL USE ONLY

15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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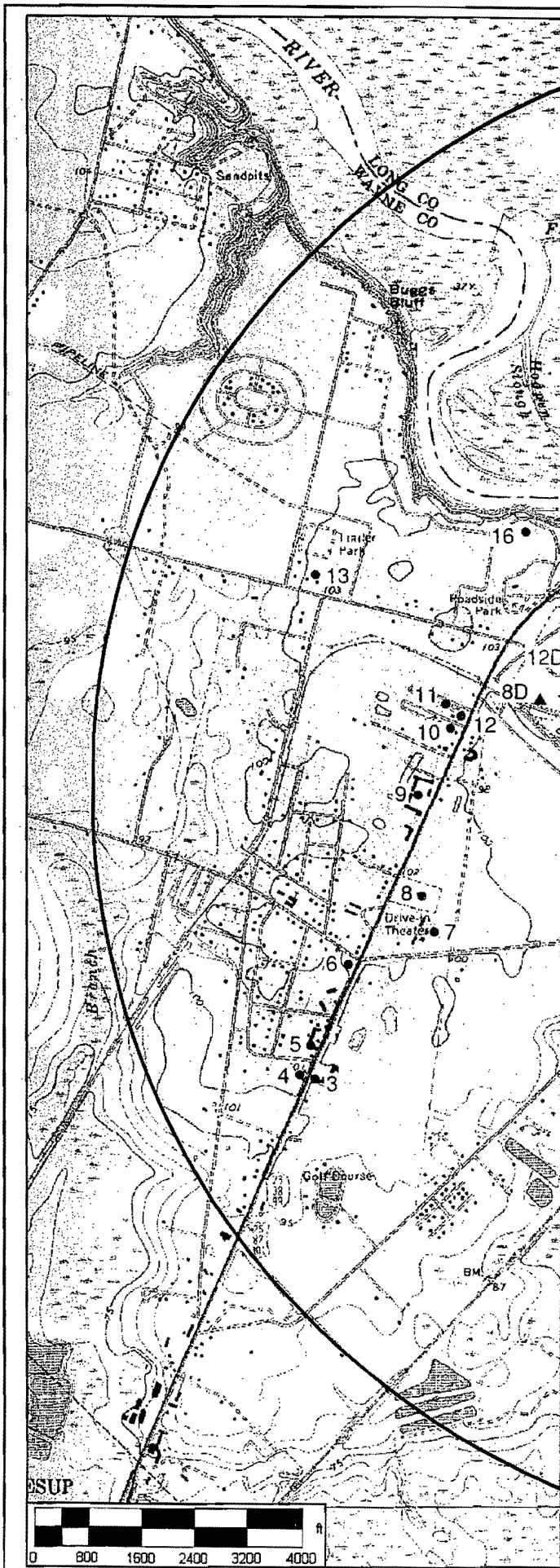


REFERENCE: Base plan for this drawing was taken from USGS 7.5 Minute Quad, Doctortown, GA, 1988



RAYONIER PERFORMANCE
FIBERS
JESUP MILL,
WAYNE COUNTY, GEORGIA

SITE
LOCATION MAP
PROJECT NO. 999079.00-14
FIGURE 1



LEGEND

- 1995 PRIVATE WELLS (16)
- 2000 PRIVATE WELLS (1)
- RAYONIER DRINKING WATER WELLS (2)
(12D WITH BACKUP 2S)
- RAYONIER DEEP PRODUCTION WELLS (11)
(1D-11D)

from USGS 7.5 Minute Quad, Doctortown, GA, 1988

RAYONIER
FIBERS
MILL,
COUNTY, GEORGIA

1995 AND 2000
PRIVATE WELL SURVEY
PROJECT NO. 999079.00-14
FIGURE 7

Please type or print in the unshaded areas only.		EPA ID Number (Copy from Item 1 of Form 1) GA0003620		Form Approved OMB No. 2040-0086 Approval Expires 7-31-88			
Form 2C NPDES		 U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS <i>Consolidated Permit Program</i>					
I. Outfall Location							
For this outfall, list the latitude and longitude, and name of the receiving water(s)							
Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
001	31	39	29	81	49	53	Altamaha River
002	31	39	04	81	49	06	Altamaha River
003	31	38	55	81	49	27	Altamaha River
II. Flows, Sources of Pollution, and Treatment Technologies							
A. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.							
B. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.							
1. Outfall Number	2. Operations Contributing Flow			3. Treatment			
	a. OPERATION (list)	b. AVERAGE FLOW		a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1		
001	1. process water associated with the production of dissolving and bleached market kraft pulp. (excluding bleaching operations)	5.25 MGD		This effluent receives primary clarification, neutralization, and aerated stabilization prior to being discharged to receiving water. Primary clarification sludge is sent to wet anaerobic composting cells	1G*, 1U, 2D, 2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T		
					* flocculent may be used as a settling aid.		

001	2. sanitary waste	0.02 MGD ✓	This effluent receives primary clarification, neutralization and aerated stabilization prior to being discharged to receiving water. Primary clarification sludge is sent to wet anaerobic composting cells	1U, 2D, 2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T	
001	3. process water associated with the bleaching of the above listed pulp	4.75 MGD 6	As above without primary clarification or sludge handling	2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T	
001	4. surface runoff	0.22 MGD ✓	As above.	1U, 3B, 4A, 5B	
002	1. process water associated with the production of dissolving and bleached market kraft pulp. (excluding bleaching operations)	24.53 MGD ✓	This effluent receives primary clarification, neutralization, and aerated stabilization prior to being discharged to receiving water. Primary clarification sludge is sent to wet anaerobic composting cells	1G*, 1U, 2D, 2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T	* flocculent may be used as a settling aid.
002	2. sanitary waste	0.09 MGD ✓	This effluent receives primary clarification, neutralization, and aerated stabilization prior to being discharged to receiving water. Primary clarification sludge is sent to wet anaerobic composting cells	1U, 2D, 2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T	

002	3. process water associated with the bleaching of the above listed pulp	21.41 MGD ✓	As above without primary clarification or sludge handling	2K, 3B, 3C, 3G, 4A, 5B, 5G, 5P, 5T	
002	4. surface runoff	1.28 MGD ✓	As above.	1U, 3B, 4A, 5B	
002	5. supernate from sludge composting operations utilizing parttime flocculation.	2.38 MGD	aerated stabilization prior to being discharged to receiving water.	3B, 4A	
003	1. surface runoff from non-process areas.	1.10 MGD	This effluent receives settling before being discharged to receiving water.	1U, 4A	
003	2. surface runoff from process areas associated with the production of dissolving and bleached market kraft pulp.	0.18 MGD	This effluent receives settling before being discharged to receiving water.	1U, 4A	

[illegible]

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?
☒ **YES** (complete Item III-B) ☐ **NO** (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?
☒ **YES** (complete Item III-C) ☐ **NO** (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

[illegible]

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☒ YES (complete the following table) ☐ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. No.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED
2631-305-0001-V-01-4	001	See attached supplemental information for details.	See attached supplemental information for details.	4/15/2006	3/15/2006

--	--	--	--	--	--

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned and indicate your actual or planned schedules for construction.

☒ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAM IS ATTACHED

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CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding. Complete one set of tables for each outfall. Annotate the outfall number in the space provided.

NOTE: Tables V-A, V-B, and V-C are included on separate sheets, number V-1 through V-9.

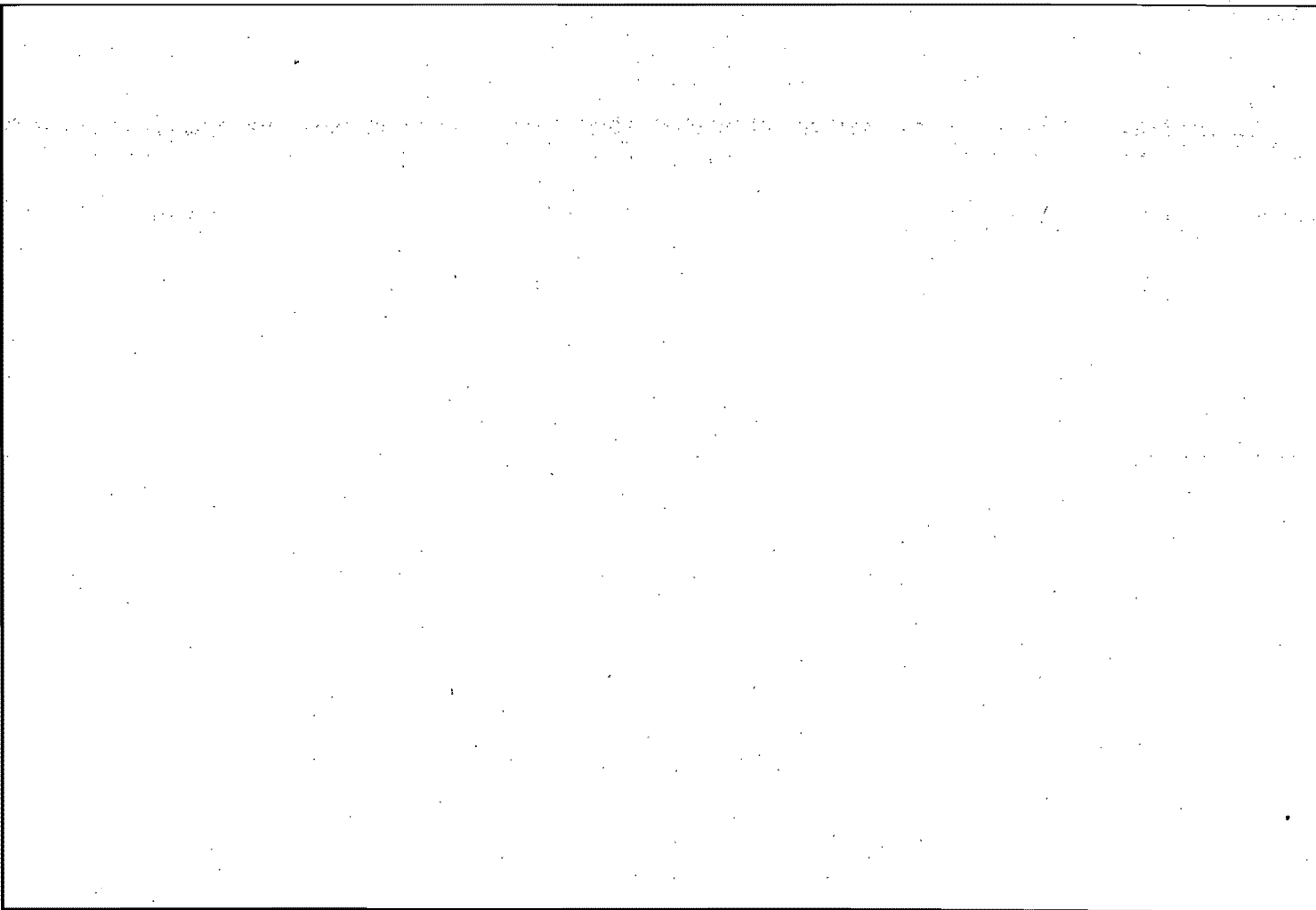
D: Use the space below to list any of the pollutants listed in Tables 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
<i>asbestos</i>	<i>present in insulation used in the pulp mill, it may be detected in mill effluent on occasion</i>		
<i>acetaldehyde</i>	<i>incidental to the pulping process and may be found in the mill effluent on occasion</i>		
<i>carbon disulfide</i>	<i>incidental to the pulping process and may be found in the mill effluent on occasion</i>		
<i>cresol</i>	<i>incidental to the pulping process and may be found in the mill effluent on occasion</i>		
<i>methylmercaptan</i>	<i>incidental to the pulping process and may be found in the mill effluent on occasion</i>		
<i>furfural</i>	<i>incidental to the pulping process and may be found in the mill effluent on occasion</i>		
<i>strontium</i>	<i>trace contaminant in raw materials, maybe detected in effluent on occasion</i>		
<i>vanadium</i>	<i>trace contaminant in raw materials, maybe detected in effluent on occasion</i>		
<i>zirconium</i>	<i>trace contaminant in raw materials, maybe detected in effluent on occasion</i>		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (list all such pollutants below)☒ NO (go to Item VI-B)



VI. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ **YES** (list the test(s) and describe their purpose below)

☐ **NO** (go to Section VIII)

Whole Effluent Toxicity test

multi-concentration chronic toxicity testing using the water flea, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas*, on outfall effluent samples collected the week of July 17-22, 2005.

MACTEC BioTox Lab

3200 Town Pointe Drive NW, Suite 100

Kennesaw, GA 30144

phone: (770) 421-7027

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ **YES** (list the name, address, and telephone number of each and pollutants analyzed by each such laboratory or firm below)

☐ **NO** (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
STL Savannah Labs	5102 LaRoche Ave. Savannah, GA 31404	(912) 354-7858	COD, TOC, nitrate/nitrite, oil & grease, sulfide, phosphorus, sulfate, chlorine, volatiles, acids, base/neutrals, metals, formaldehyde, MBAS, total phenolics, pesticides
STL Sacramento	880 Riverside Parkway Sacramento, CA 95605	(916) 373-5600	2,3,7,8 TCDD
Columbia Analytical	8540 Baycenter Rd. Jacksonville, FL 32256	(904) 739-2277	fecal coliform, cyanide, total organic nitrogen, MBAS, sulfite, volatiles, acids, base/neutrals
STL - Billerica	148 Rangeway Road N. Billerica, MA 01862	(978) 667-1400	asbestos
ELAB, Inc.	8 East Tower Circle Ormond Beach, FL 32174	(386) 672-5668	total phenols
STL St. Louis	13715 Rider Trail North Earth City, MO 63045	(314) 298-8566	radiation chemistry
		()	
		()	
		()	

		()	
		()	
		()	
		()	
		()	

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type or print)

Mike Burch, Vice-President and General Manager

B. PHONE NO. (area code & no.)

(912) 427-5383

C. SIGNATURE

Mike Burch

D. DATE SIGNED

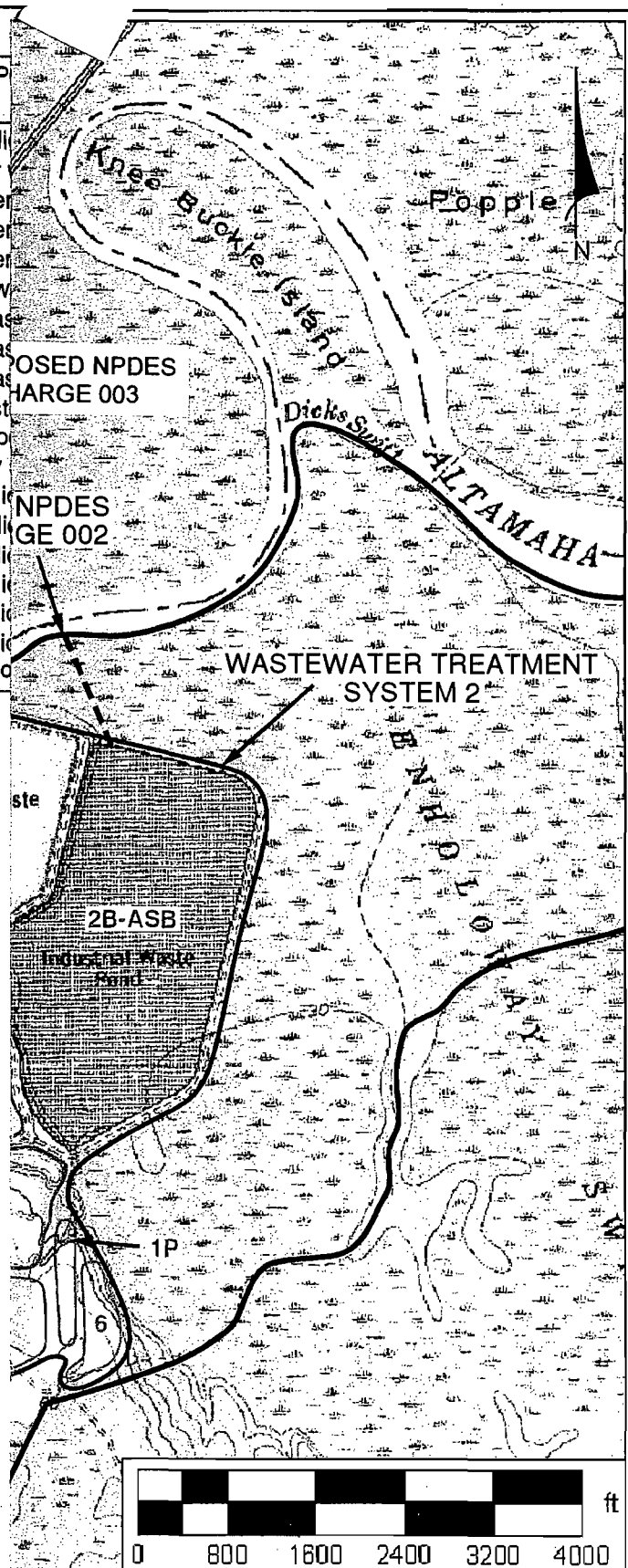
10/28/05

IMPOUNDMENT NUMBER	IMPOUNDMENT NAME	IMP
1	Weak clarifier	Primary solid
2	Sludge lagoon	Storage for
3	No. 1 Rayonier Lake	Storm water
4	No. 2 Rayonier Lake	Storm water
5	No. 3 Rayonier Lake	Storm water
6	Fish Pond	Clay borrow
1-ASB	No. 1 ASB	Aeration bas
2A-ASB	No. 2A ASB	Aeration bas
2B-ASB	No. 2B ASB	Aeration bas
1SL	No. 1 SL	Strong waste
2SL	No. 2 SL	Knots comp
7	No. 7 ESB	Emergency
1C/3C	No. 1/3 Compost	Clarifier soli
5C	No. 5 Compost	Clarifier soli
7C	No. 7 Compost	Clarifier soli
9C	No. 9 Compost	Clarifier soli
10C	No. 10 Compost	Clarifier soli
6C/11C	No. 6/11 Compost	Clarifier soli
1P	No. 1 Polishing	Polishing Po

ASB = Aeration Stabilization Basin
 ESB = Emergency Settling Basin
 SL = Strong Lagoon
 C = Compost
 P = Polishing

LEGEND

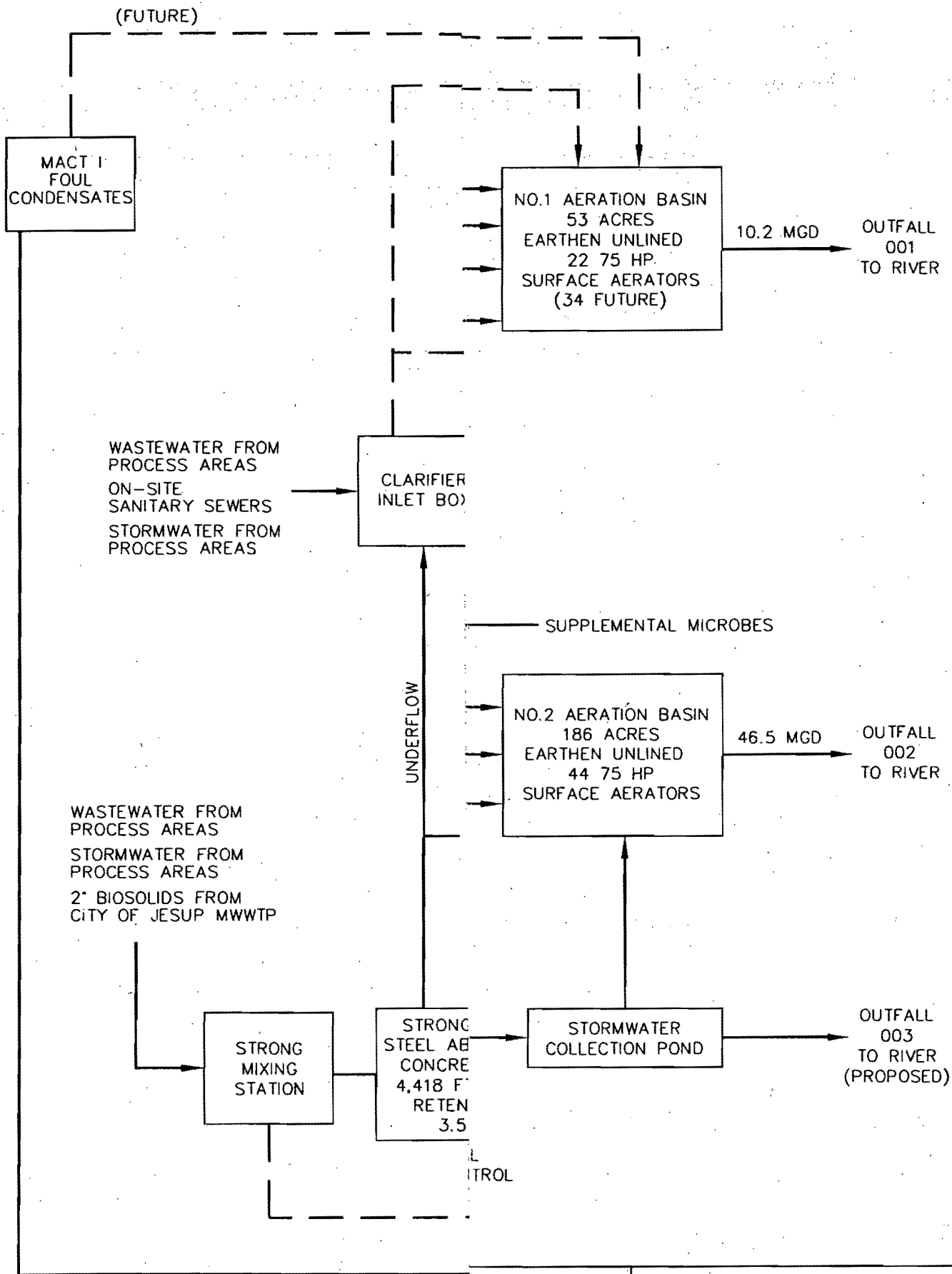
- DEEP GROUNDWATER WELLS (11)
- DRINKING WATER WELL (1)



from USGS 7.5 Minute Quad, Doctortown, GA, 1988

RAYONIER
 CELLULOSE FIBERS
 MILL,
 DOCTOR TOWN, GEORGIA

WASTEWATER TREATMENT
 SYSTEM COMPONENTS
 PROJECT NO. 999079.00-14
 FIGURE 2



NOTE: ALL PROCESS WATER IS SUPPLIED BY GROUNDWATER

PERFORMANCE
STATIONERS
MILL,
CITY, GEORGIA

WASTEWATER TREATMENT SYSTEM FLOW DIAGRAM

PROJECT NO. 999079.00-08
FIGURE 3

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (copy from Item 1 of Form 1)
GA0003620

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

PART A: You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSIS			a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	89	5.1	54	2.3	31	1.3	365	mg/L	ton/day			
b. Chemical Oxygen Demand (COD)	590	31.98					1	mg/L	ton/day			
c. Total Organic Carbon (TOC)	80	4.34					1	mg/L	ton/day			
d. Total Suspended Solids (TSS)	136	8.0	89	3.9	58	2.4	364	mg/L	ton/day			
e. Ammonia (as N)	2.49	242.19	1.01	86.92	0.71	65.44	30	mg/L	ton/day			
f. Flow	Value 25.0		Value 13.3		Value 10.2		365	MGD	NA	Value		
g. Temperature (winter)	Value 27		Value 23		Value 22		91	°C		Value		
h. Temperature (summer)	Value 35 45°F		Value 33		Value 32		93	°C		Value		
i. pH	Minimum 7.4	Maximum 8.5	Minimum 7.7	Maximum 8.1			365	STANDARD UNITS				

PART B: Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant which is limited either directly or indirectly but expressly in an effluent limitation guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2-a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. BE LEVED PRESENT	b. BE LEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
b. Chlorine Total Residual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
c. Color	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2480	197.0	2375	106.2	2064	92.1	132	CPU	ton/day			
d. Fecal Coliform	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5						1	CFU/100ml				
e. Fluoride (16984-48-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
f. Nitrate-Nitrite (as N)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.21	19.62					1	mg/L	ppd			

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	A. BE- LIEVED PRES- ENT	B. BE- LIEVED AB- SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSIS			a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS		a. CONCEN- TRATION	b. MASS	(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.4	822.0					1	mg/L	ppd			
h. Oil and Grease	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
i. Phosphorus (as P), Total (7723-14-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.4	130.77					1	mg/L	ppd			
j. Radioactivity														
(1) Alpha Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(2) Beta Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(3) Radium Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(4) Radium 226, Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
k. Sulfate (as SO ₄) (14808-79-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	570	26.62					1	mg/L	ppd			
l. Sulfide (as S)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
m. Sulfite (as SO ₃) (74265-45-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
n. Surfactants	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.28	25.22					1	mg/L	ppd			
o. Aluminum Total (7429-90-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	710	66.32					1	ug/L	ppd			
p. Barium Total (7440-39-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	190	17.75					1	ug/L	pppd			
q. Boron Total (7440-42-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	66	6.16					1	ug/L	ppd			
r. Cobalt Total (7440-48-4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
s. Iron Total (7439-89-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	590	55.11					1	ug/L	ppd			
t. Magnesium Total (7439-95-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17000	0.79					1	ug/L	ton/day			
u. Molybdenum Total (7439-98-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
v. Manganese Total (7439-96-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	510	47.64					1	ug/L	ppd			
w. Tin Total (7440-31-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BDL						1					
x. Titanium Total (7440-32-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14	1.31					1	ug/L	ppd			

CONTINUED FROM PAGE 3 OF FORM 2-C

EPA I.D. NUMBER (copy from Item 1 of Form 1)
GA0003620OUTFALL NUMBER
001

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						d. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
2M. Arsenic Total (7440-38-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
3M. Beryllium Total (7440-41-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
4M. Cadmium Total (7440-43-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
5M. Chromium Total (7440-47-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
6M. Copper Total (7440-50-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
7M. Lead Total (7439-92-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
8M. Mercury Total (7439-97-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
9M. Nickel Total (7440-02-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
10M. Selenium Total (7782-49-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
11M. Silver Total (7440-22-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
12M. Thallium Total (7440-28-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
13M. Zinc Total (7440-66-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23	2.15					1	ug/L	ppd			
14M. Cyanide Total (57-12-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
15M. Phenols Total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.050	4.90					2	mg/L	ppd			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DESCRIBE RESULTS average < 0.000003325 ug/L on 4 flow proportioned samples of outfall 001 & 002											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
2V. Acrylonitrile (107-13-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
3V. Benzene (71-43-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
4V. Bis (Chloromethyl) Ether (542-88-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
5V. Bromoform (75-25-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
6V. Carbon Tetrachloride (56-23-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
7V. Chlorobenzene (108-90-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
8V. Chlorodibromomethane (124-48-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
9V. Chloroethane (75-00-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
10V. 2-Chloroethylvinyl Ether (110-75-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
11V. Chloroform (67-66-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
12V. Dichlorobromomethane (75-71-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
13V. Dichlorodifluoromethane (75-71-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
14V. 1,1-Dichloroethane (75-34-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
15V. 1,2-Dichloroethane (107-06-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
16V. 1,1-Dichloroethylene (75335-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
17V. 1,2-Dichloropropane (78-87-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
18V. 1,3-Dichloropropylene (542-76-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
19V. Ethylbenzene (100-41-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
20V. Methyl Bromide (74-83-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
21V. Methyl Chloride (74-87-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.6	0.24					2	ug/L	ppd			

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1)
GA0003620OUTFALL NUMBER
001

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)	
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - VOLATILE COMPOUNDS (continued)															
22 V Methylene Chloride (75-09-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
23 V 1,1,2,2-Tetrachloroethane (79-34-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
24 V Tetrachloroethylene (127-18-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
25 V Toluene (108-88-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
26 V 1,2-Trans-Dichloroethylene (156-60-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
27 V 1,1,1-Trichloroethane (71-55-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
28 V 1,1,2-Trichloroethane (79-00-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
29 V Trichloroethylene (79-01-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
30 V Trichlorofluoromethane (75-69-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
31 V Vinyl Chloride (75-01-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
GC/MS FRACTION - ACID COMPOUNDS															
1A 2-Chlorophenol (95-57-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
2A 2,4-Dichlorophenol (120-83-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
3A 2,4-Dimethylphenol (105-67-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
4A 4-B-Dinitro-Cresol (534-52-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
5A 2,4-Dinitrophenol (51-28-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
6A 2-Nitrophenol (88-75-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
7A 4-Nitrophenol (100-02-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
8A p-Chloro-M-Cresol (59-50-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
9A Pentachlorophenol (87-86-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
10A Phenol (107-95-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
11A 2,4,6-Trichlorophenol (88-06-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B Acenaphthene (83-32-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
2B Acenaphthylene (208-96-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
3B Anthracene (120-12-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
4B Benzidine (92-87-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
5B Benzo (a) Anthracene (56-55-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
6B Benzo (d) Pyrene (50-32-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
7B 3,4-Benzo-fluoranthene (205-99-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
8B Benzo (ghi) Perylene (191-24-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
9B Benzo (k) Fluoranthene (207-08-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
10B Bis (2-Chloroethoxy) Methane (111-91-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
11B Bis (2-Chloroethyl) Ether (111-44-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
12B Bis (2-Chloroisopropyl) Ether (102-60-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
13B Bis (2-Ethylhexyl) Phthalate (117-81-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
14B 4-Bromophenyl Phenyl Ether (101-55-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
15B Butyl Benzyl Phthalate (85-68-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
16B 2-Chloronaphthalene (91-68-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
17B 1-Chlorophenyl Phenyl Ether (7005-72-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
18B Chrysene (218-01-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
19B Dibenz (a,h) Anthracene (53-70-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
20B 1,2-Dichlorobenzene (95-50-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
21B 1,3-Dichlorobenzene (541-73-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS - BASE/NEUTRAL COMPOUNDS (continued)																	
22B 1,4-Dichlorobenzene (106-46-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
23B 2,3-Dichlorobenzidine (91-94-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
24B Diethyl Phthalate (84-66-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
25B Dimethyl Phthalate (131-11-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
26B Di-N-Butyl Phthalate (131-11-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
27B 2,4-Dinitrotoluene (121-14-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
28B 2,6-Dinitrotoluene (606-20-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
29B Di-N-Octyl Phthalate (117-84-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
30B 1,2-Dichloro-4,5-dicyanobenzene (122-66-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
31B Fluoranthene (206-44-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
32B Fluorene (86-73-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
33B Hexachlorobenzene (148-74-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
34B Hexachlorobutadiene (87-68-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
35B Hexachlorocyclopentadiene (77-47-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
36B Hexachloroethane (67-72-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
37B Indeno (1,2,3-cd) Pyrene (193-39-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
38B Isophorone (78-59-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
39B Naphthalene (91-20-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
40B Nitrobenzene (98-95-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
41B N-Nitrosodimethylamine (62-75-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
42B N-Nitrosod-N-Propylamine (621-64-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B N-Nitrosodiphenylamine (86-30-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
44B Phenanthrene (85-01-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
45B Pyrene (129-00-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
46B 1,2,4-Trichlorobenzene (120-82-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
GC/MS FRACTION - PESTICIDES															
1B Aldrin (309-00-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
2P o-BHC (319-85-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
4P γ-BHC (56-89-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
5P δ-BHC (319-86-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
6P Chlordane (57-74-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
7P 4,4'-DDT (50-29-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
8P 4,4'-DDE (72-55-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
9P 4,4'-DDD (72-54-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
10P Dieldrin (60-57-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
11P α-Endosulfan (145-29-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
12P β-Endosulfan (145-29-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
13P Endosulfan Sulfate (1031-07-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
14P Endrin (72-20-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
15P Endrin Aldehyde (7421-93-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
16P Heptachlor (76-44-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS - PESTICIDES (continued)																	
17P Heptachlor Epoxide (1024-57-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
18P PCB-1242 (53469-21-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
19P PCB-1254 (11097-69-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
20P PCB-1221 (11104-28-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
21P PCB-1232 (11141-16-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
22P PCB-1246 (12672-29-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
23P PCB-1260 (11096-82-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
24P PCB-1016 (12674-11-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							
25P Toxaphene (800135-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1							

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

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V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30-DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	101	19.7	64	12.4	45	8.8	363	mg/L	ton/day			
b. Chemical Oxygen Demand (COD)	550	98.62					1	mg/L	ton/day			
c. Total Organic Carbon (TOC)	80	14.34					1	mg/L	ton/day			
d. Total Suspended Solids (TSS)	161	31.9	82	17.3	65	12.7	363	mg/L	ton/day			
e. Ammonia (as N)	1.31	576.86	0.87	235.81	0.41	156.7	29	mg/L	ton/day			
f. Flow	Value 68.2		Value 53.7		Value 46.5		362	MGD	NA	Value		
g. Temperature (winter)	Value 29		Value 23		Value 23		91	°C		Value		
h. Temperature (summer)	Value 34 93.2°F		Value 33		Value 33		93	°C		Value		
i. pH	Minimum 7.4	Maximum 8.4	Minimum 7.8	Maximum 8.1			363	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant which is limited either directly or indirectly but expressly in an effluent limitation guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2-a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30-DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
b. Chlorine Total Residual	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
c. Color	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2910	712.3	2435	521.3	2224	431.2	130	CPU	ton/day			
d. Fecal Coliform	<input checked="" type="checkbox"/>	<input type="checkbox"/>	115						1	CFU/100ml				
e. Fluoride (16984-48-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
f. Nitrate Nitrite (as N)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. BE-LEVED PRESENT	b. BE-LEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSIS	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.9	1716.4					1	mg/L	ppd			
h. Oil and Grease	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
i. Phosphorus (as P), Total (7723-14-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.7	708.9					1	mg/L	ppd			
j. Radioactivity														
(1) Alpha Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(2) Beta Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(3) Radium Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
(4) Radium 226 Total	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
k. Sulfate (as SO ₄) (14808-79-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	490	102.17					1	mg/L	ton/day			
l. Sulfide (as S)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
m. Sulfite (as SO ₃) (14265-45-3)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
n. Surfactants	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.24	81.87					1	mg/L	ppd			
o. Aluminum Total (7429-90-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1400	583.8					1	ug/L	ppd			
p. Barium Total (7440-39-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	240	100.08					1	ug/L	pppd			
q. Boron Total (7440-42-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	65	27.11					1	ug/L	ppd			
r. Cobalt Total (7440-48-4)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
s. Iron Total (7439-89-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	920	383.64					1	ug/L	ppd			
t. Magnesium Total (7439-95-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20000	4.17					1	ug/L	ton/day			
u. Molybdenum Total (7439-98-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ND						1					
v. Manganese Total (7439-96-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	690	287.73					1	ug/L	ppd			
w. Tin Total (7440-31-5)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	ND						1					
x. Titanium Total (7440-32-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25	10.43					1	ug/L	ppd			

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PART C If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant. If you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						d. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony Total (7440-36-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
2M. Arsenic Total (7440-38-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
3M. Beryllium Total (7440-41-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
4M. Cadmium Total (7440-43-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
5M. Chromium Total (7440-47-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
6M. Copper Total (7440-50-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
7M. Lead Total (7439-92-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
8M. Mercury Total (7439-97-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
9M. Nickel Total (7440-02-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
10M. Selenium Total (7782-49-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
11M. Silver Total (7440-22-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
12M. Thallium Total (7440-28-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
13M. Zinc Total (7440-66-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47	19.60						1	ug/L	ppd		
14M. Cyanide Total (57-12-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND							1				
15M. Phenols Total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.098	40.33						2	mg/L	ppd		
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-p-Dioxin (1764-01-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DESCRIBE RESULTS average of < 0.000003325 ug/L on 4 flow proportioned samples of outfall 001 & 002											

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
2V. Acrylonitrile (107-13-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
3V. Benzene (71-43-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
4V. Bis (Chloromethyl) Ether (542-88-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
5V. Bromoform (75-25-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
6V. Carbon Tetrachloride (56-23-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
7V. Chlorobenzene (108-90-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
8V. Chlorodibromomethane (124-48-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
9V. Chloroethane (75-00-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
10V. 2-Chloroethyl Vinyl Ether (140-75-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
11V. Chloroform (67-66-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
12V. Dichlorobromomethane (75-71-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
13V. Dichlorodifluoromethane (75-71-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
14V. 1,1-Dichloroethane (75-34-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
15V. 1,2-Dichloroethane (107-06-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
16V. 1,1-Dichloroethylene (75335-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
17V. 1,2-Dichloropropane (78-87-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
18V. 1,3-Dichloropropylene (542-76-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
19V. Ethylbenzene (100-41-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
20V. Methyl Bromide (74-83-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
21V. Methyl Chloride (74-87-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.4	1.0					2	ug/L	ppd			

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EPA I.D. NUMBER (copy from Item 1 of Form 1)
GA0003620OUTFALL NUMBER
002

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS - VOLATILE COMPOUNDS (continued)																	
22.V. Methylene Chloride (75-09-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
23.V. 1,1,2,2-Tetrachloroethane (79-34-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
24.V. Tetrachloroethylene (127-18-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
25.V. Toluene (108-88-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
26.V. 1,2-Dichlorobenzene (456-80-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
27.V. 1,1,1-Trichloroethane (71-55-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
28.V. 1,1,2,2-Tetrachloroethane (79-00-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
29.V. Trichloroethylene (79-01-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
30.V. Trichlorofluoromethane (75-69-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
31.V. Vinyl Chloride (75-01-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
GC/MS FRACTION - ACID COMPOUNDS																	
21A. 2-Chlorophenol (95-57-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
2A. 2,4-Dichlorophenol (120-83-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
3A. 2,4-Dimethylphenol (105-67-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
4A. 4-Nitrophenol (534-52-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
5A. 2,4-Dinitrophenol (51-28-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
6A. 2-Nitrophenol (88-75-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
7A. 4-Nitrophenol (100-02-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
8A. 2-Chloro-4-Methylphenol (59-50-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
9A. Pentachlorophenol (87-86-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
10A. Phenol (10-95-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
11A. 2,4,6-Trichlorophenol (88-06-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS																	
1B Acenaphthene (83-32-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
2B Acenaphthylene (208-96-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
3B Anthracene (120-127)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
4B Benzidine (92-87-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
5B Benzo(a) Anthracene (56-55-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
6B Benzo(a) Pyrene (50-32-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
7B 3,4-Benzo fluoranthene (205-99-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
8B Benzo(ghi) Perylene (191-24-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
9B Benzo(k) Fluoranthene (207-08-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
10B Bis(2-Chloroethoxy) Methane (111-91-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
11B Bis(2-Chloroethyl) Ether (111-44-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
12B Bis(2-Chloroisopropyl) Ether (102-60-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
13B Bis(2-Ethylhexyl) Phthalate (117-81-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
14B 4-Bromophenyl Phenyl Ether (101-55-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
15B Butyl Benzyl Phthalate (65-68-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
16B 2-Chloronaphthalene (91-68-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
17B 4-Chlorophenyl Phenyl Ether (7005-72-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
18B Chrysene (218-01-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
19B DiBenzo(a,h) Anthracene (53-70-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
20B 1,2-Dichlorobenzene (95-50-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							
21B 1,3-Dichlorobenzene (541-73-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2							

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EPA I.D. NUMBER (copy from Item 1 of Form 1)
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002

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT								3. UNITS (specify if blank)		4. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS		
GC/MS - BASE/NEUTRAL COMPOUNDS (continued)																
22B 1,4-Dichlorobenzene (106-46-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
23B 3,3-Dichlorobenzidine (91-94-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
24B Diethyl Phthalate (84-66-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
25B Dimethyl Phthalate (131-11-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
26B Di-N-Butyl Phthalate (131-11-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
27B 2,4-Dinitrotoluene (121-14-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
28B 2,6-Dinitrotoluene (606-20-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
29B Di-N-Octyl Phthalate (117-84-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
30B 1,2-Diphenylhydrazine (as Azo-benzene) (122-66-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
31B Fluoranthene (206-44-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
32B Fluorene (86-73-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
33B Hexachlorobenzene (118-74-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
34B Hexachlorobutadiene (87-68-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
35B Hexachlorocyclopentadiene (77-47-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
36B Hexachloroethane (67-72-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
37B Indeno (1,2,3-cd) Pyrene (193-39-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
38B Isophorone (78-59-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
39B Naphthalene (91-20-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
40B Nitrobenzene (98-95-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
41B N-Nitrosodimethylamine (62-75-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						
42B N-Nitrosodimethylpropylamine (621-64-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2						

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B N-Nitrosodiphenylamine (86-30-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
44B Phenanthrene (85-01-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
45B Pyrene (129-00-0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
46B 1,2,4-Trichlorobenzene (120-82-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						2					
GC/MS FRACTION - PESTICIDES															
1P Aldrin (309-00-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
2P p-BHC (319-85-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
4P γ-BHC (58-89-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
5P δ-BHC (319-86-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
6P Chlordane (57-74-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
7P 4,4'-DDT (50-29-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
8P 4,4'-DDE (72-55-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
9P 4,4'-DDD (72-54-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
10P Dieldrin (60-57-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
11P α-Endosulfan (115-29-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
12P β-Endosulfan (115-29-7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
13P Endosulfan Sulfate (1031-07-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
14P Endrin (72-20-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
15P Endrin Aldehyde (7421-93-4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					
16P Heptachlor (76-44-8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1					

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1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'			2. EFFLUENT						d. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS		
GC/MS - PESTICIDES (continued)																
17P. Heptachlor Epoxide (1024-57-3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
18P. PCB-1242 (53469-21-9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
19P. PCB-1254 (11097-69-1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
20P. PCB-1221 (11104-28-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
21P. PCB-1232 (11141-16-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
22P. PCB-1248 (12672-29-6)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
23P. PCB-1260 (11096-82-5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
24P. PCB-1016 (12674-11-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						
25P. Toxaphene (8001-35-2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ND						1						

CHRONIC TOXICITY TESTING REPORT

RAYONIER WWTP EFFLUENT

JESUP, GEORGIA

Test Period: July 19-26, 2005

Prepared for:

Rayonier Performance Fibers

Jesup, Georgia

September 2005



CHRONIC TOXICITY TESTING REPORT

**RAYONIER WWTP
EFFLUENT
JESUP, GEORGIA**

Test Period: July 19-26, 2005

Prepared for:

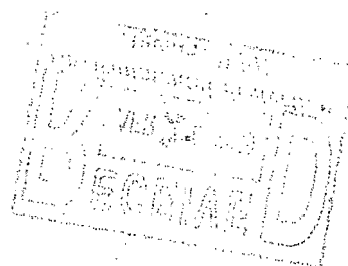
Rayonier Performance Fibers

Prepared by:

**BioTox Laboratory
MACTEC Engineering and Consulting, Inc.**

Kennesaw, Georgia

**September 2005
Project No. 13320-5-9500**





engineering and constructing a better tomorrow

September 7, 2005

Ms. Deborah Oder
Rayonier Performance Fibers
4470 Savannah Highway
Jesup, GA 31545

Subject: **Chronic Toxicity Testing of Rayonier WWTP Effluent**
Jesup, Georgia, July 19-26, 2005
MACTEC Project 13320-5-9500

Dear Ms. Oder:

MACTEC Engineering and Environmental Services (MACTEC) BioTox Laboratory has completed multi-concentration chronic toxicity testing using the water flea, *Ceriodaphnia dubia*, and fathead minnow, *Pimephales promelas*, on Rayonier WWTP Outfall 001/002 effluent samples collected by Rayonier personnel the week of July 17-22, 2005.

The Instream Waste Concentration (IWC) designated for the permitted discharge of Rayonier WWTP Outfall 001/002 effluent is currently 9.11%. Chronic toxicity was not exhibited to water flea survival or reproduction at any of the effluent concentrations tested when statistically compared to the control treatment. The No Observable Effect Concentration (NOEC), or the highest concentration tested that did not exhibit chronic toxicity, was 36.4% effluent for water flea survival and reproduction. When the NOEC is less than the IWC, chronic toxicity is indicated in the effluent samples submitted. In this case, the NOECs for water flea survival and reproduction are not less than the IWC; therefore, chronic toxicity was not indicated to the water flea in the Rayonier WWTP effluent samples.

Chronic toxicity was exhibited to fathead minnow survival at the 18.2% effluent concentration when statistically compared to the control treatment. However, there was no indication of chronic toxicity to fathead minnow survival at the 2.28%, 4.56%, 9.11%, or 36.4% effluent concentrations. Since there was no indication of chronic toxicity to survival at the highest effluent concentration (36.4%), we are considering the indication of chronic toxicity to survival at the 18.2% effluent concentration as anomalous, and was not included in determination of the NOEC. The NOEC, therefore, was 36.4% effluent for fathead minnow survival. Chronic toxicity was not exhibited to fathead minnow growth at any of the effluent concentrations when statistically compared to the control treatment. The NOEC, therefore, was 36.4% effluent for fathead minnow growth. The NOECs for fathead minnow survival and growth are not less than the IWC; therefore, chronic toxicity is not indicated to the fathead minnow in the Rayonier WWTP effluent samples.

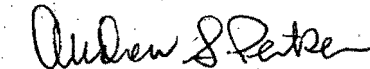
September 7, 2005

Results are summarized in the accompanying report (62 total pages). All test results contained herein comply with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). A summary of test conditions, as well as chemical and physical data, are located in Appendix A (10 total pages). Sample collection locations, dates, times, and temperatures, are located in the attached chain of custody documents in Appendix B (6 total pages). Test organism source data are located in Appendix C (4 total pages). Raw laboratory data and statistical analyses results are located in Appendix D (30 total pages).

If there are any questions, please do not hesitate to contact Andrew S. Peiken at (770) 421-7027.

Sincerely,

MACTEC ENGINEERING AND CONSULTING, INC.



Andrew S. Peiken, C.E.
BioTox Laboratory Manager



Margaret E. Tanner
Environmental Engineer

Attachment: Data Report

TEST SUMMARY

I. Client

Facility Tested: Rayonier
4470 Savannah Highway
Jesup, Georgia 31545

NPDES Number: GA0003620

Samples Tested: Rayonier WWTP Effluent
MACTEC Lab ID: 05-0111-01, 05-0115-01, 05-0116-01

II. Laboratory Accreditation

Laboratory: BioTox Laboratory
MACTEC Engineering and Consulting, Inc.
3200 Town Point Drive N.W., Suite 100
Kennesaw, Georgia 30144

Accreditor: State of Florida, Department of Health
Bureau of Laboratories

Accreditation ID: Lab ID. E87477

Category: Non-Potable Water – Whole Effluent Toxicity

Effective: July 1, 2005 through June 30, 2006

III. Tests Conducted

Test: Water Flea, *Ceriodaphnia dubia*
Chronic Definitive Survival and Reproduction Test
EPA-821-R-02-013, 2002.

Fathead minnow, *Pimephales promelas*
Chronic Definitive Larval Survival and Growth Test
EPA-821-R-02-013, 2002

Test Dates (Times): Water Flea: July 19 (1300) - 26 (1300), 2005
Fathead Minnow: July 19 (1455) - 26 (1600), 2005

Source/Age of Organisms: Water Flea: In-house cultures, ID# CERB01070805 / < 24 hours
Fathead minnow: Aquatic BioSystems, ID# CS981071905 / < 48 hours

Test Concentrations: Control, 2.28%, 4.56%, 9.11%, 18.2%, and 36.4% effluent

Control Water: Water Flea: DMW, Diluted Mineral Water, 20-percent Perrier.
Fathead minnow: LWC, moderately hard reconstituted fresh water.

Deviation From Test Protocol: None

Statistical Analyses: Toxstat 3.5 (Gulley, 1996)

IV. Results

Survival and Reproduction Data for Water Fleas Exposed for Seven Days to Rayonier WWTP Outfall 001/002 Effluent, July 19-26, 2005.

% Total Effluent	Survival (%)	Reproduction ^a
Laboratory Control ^b	100	15.7
2.28	100	21.4
4.56	100	21.8
9.11	100	21.4
18.2	100	20.0
36.4	90.0	11.5
NOEC ^c (% Effluent)	36.4	36.4

Prepared by: ASP 9/7/05
 Checked by: MET 9/7/05

^a Mean number of young (neonates) per original number of female water fleas, excluding those accidentally killed.

^b DMW = Diluted Mineral Water, Moderately Hard Synthetic Freshwater

^c NOEC = No Observable Effect Concentration

Survival and Growth Data for Fathead Minnows Exposed for Seven Days to Rayonier WWTP Outfall 001/002 Effluent, July 19-26, 2005.

% Total Effluent	Survival (%)	Growth ^a (mg)
Laboratory Control ^b	97.5	0.344
2.28	97.5	0.381
4.56	90.0	0.397
9.11	92.5	0.362
18.2	85.0	0.311
36.4	90.0	0.392
NOEC ^c (% Effluent)	36.4	36.4

Prepared by: ASP 9/7/05
 Checked by: MET 9/7/05

^a Mean dry weight per original number of fish used at test start, excluding those that were accidentally killed or missing.

^b LWC = Laboratory Water Control, Moderately Hard Synthetic Freshwater

^c NOEC = No Observable Effect Concentration

V. Summary

The Instream Waste Concentration (IWC) designated for the permitted discharge of Rayonier WWTP Outfall 001/002 effluent is currently 9.11%. Chronic toxicity was not exhibited to water flea survival or reproduction at any of the effluent concentrations tested when statistically compared to the control treatment. The No Observable Effect Concentration (NOEC), or the highest concentration tested that did not exhibit chronic toxicity, was 36.4% effluent for water flea survival and reproduction. When the NOEC is less than the IWC, chronic toxicity is indicated in the effluent samples submitted. In this case, the NOECs for water flea survival and reproduction are not less than the IWC; therefore, chronic toxicity was not indicated to the water flea in the Rayonier WWTP effluent samples.

Chronic toxicity was exhibited to fathead minnow survival at the 18.2% effluent concentration when statistically compared to the control treatment. However, there was no indication of chronic toxicity to fathead minnow survival at the 2.28%, 4.56%, 9.11%, or 36.4% effluent concentrations. Since there was no indication of chronic toxicity to survival at the highest effluent concentration (36.4%), we are considering the indication of chronic toxicity to survival at the 18.2% effluent concentration as anomalous, and was not included in determination of the NOEC. The NOEC, therefore, was 36.4% effluent for fathead minnow survival. Chronic toxicity was not exhibited to fathead minnow growth at any of the effluent concentrations when statistically compared to the control treatment. The NOEC, therefore, was 36.4% effluent for fathead minnow growth. The NOECs for fathead minnow survival and growth are not less than the IWC; therefore, chronic toxicity is not indicated to the fathead minnow in the Rayonier WWTP effluent samples.

VI. Quality Assurance

Ceriodaphnia dubia, NaCl Reference Toxicant, RT#139CCD, 7/20/05

Survival: IC₂₅ = 2,571 mg/L NaCl (ACCEPTABLE)
IC₂₅ Range of Acceptability = 1,410 to 3,290 mg/L NaCl
Reproduction: IC₂₅ = 1,173 mg/L NaCl (ACCEPTABLE)
IC₂₅ Range of Acceptability = 630 to 1,510 mg/L NaCl

Pimephales promelas, NaCl Reference Toxicant, RT#166CPP, 7/19/05

Survival: IC₂₅ = 3,650 mg/L NaCl (ACCEPTABLE)
IC₂₅ Range of Acceptability = 1,230 to 6,070 mg/L NaCl
Growth: IC₂₅ = 2,369 mg/L NaCl (ACCEPTABLE)
IC₂₅ Range of Acceptability = 1,100 to 4,140 mg/L NaCl

GLOSSARY AND ABBREVIATIONS

Acute	Involving a stimulus severe enough to rapidly induce a response; in toxicity tests, a response observed in 96 hours or less typically is considered acute.
Chronic	Involving a stimulus that lingers or continues for a relatively long period of time, often one-tenth of the life span or more. A chronic effect can be lethality, growth, reduced reproduction, etc.
Chronic	A numeric value representing the geometric mean of the NOEC (No Observed Effect ValueConcentration) and the LOEC (Lowest Observed Effect Concentration) by chronic toxicity testing. The chronic value is an estimate of the toxicant concentration that will be the actual no effect concentration based on the chronic effect tested.
Critical Value	Minimum numeric value for a toxicity test endpoint (i.e., survival, growth, or reproduction) below which a given test result will be statistically significantly different from the control value.
DMW	Diluted Mineral Water
EC	Effective Concentration, a point estimate of the toxicant concentration that would cause an adverse response such as death, immobilization, or serious incapacitation.
Ft-c	Foot candles - a measure of <u>light</u> intensity
Graphical Method	Log concentration versus percent mortality method. Toxicity test data are plotted on 2-cycle semi-log graph paper. The logarithmic axis (y axis) is used for percent effluent concentration, and the linear axis (x axis) is used for percent mortality. The graph provides a reasonably accurate estimate of the LC ₅₀ , but does not provide a confidence interval.
IC	Inhibition Concentration, a point estimate of the toxicant concentration that would cause a given percent reduction in a biological measurement such as fecundity or growth.
LC	Lethal Concentration, identical to EC when the observed response is death.
LC ₅₀	The toxicant concentration that is lethal to 50 percent of exposed organisms at a specific time of observation.
LCL	Lower 95-percent Confidence Limit
LOEC	Lowest-Observed-Effect-Concentration, the lowest concentration of toxicant to which organisms are exposed that causes adverse effects.
LWC	Lab Water Control, moderately hard synthetic freshwater prepared from MILLIPORE MILLI-Q ^R water and reagent grade chemicals.

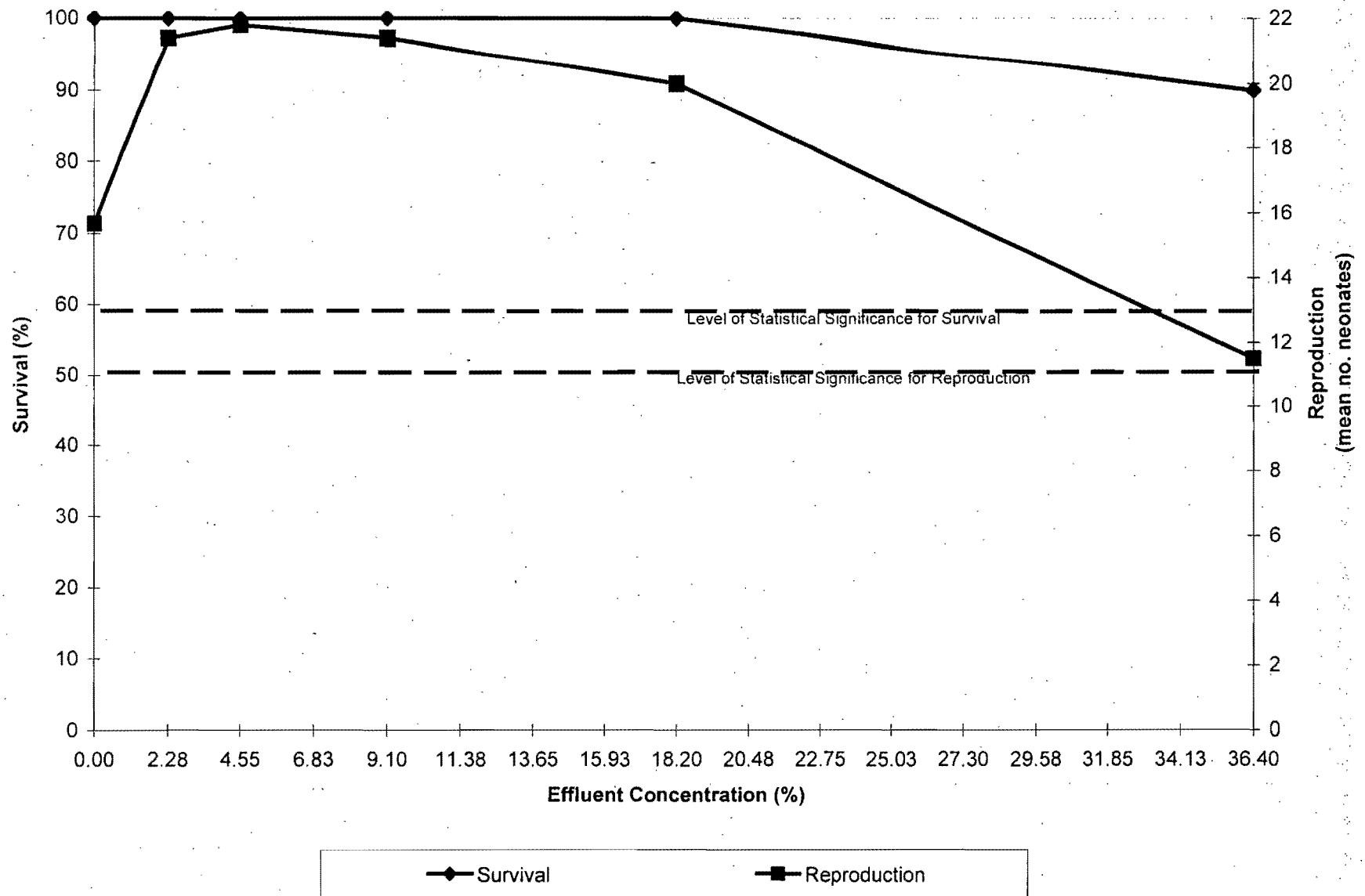
NOEC	No-Observed-Effect-Concentration, the highest concentration of toxicant to which organisms are exposed that causes no observable adverse effects.
Probit Analyses	Probit Analysis consists of a group of statistical methods used to analyze data from concentration-response experiments, and provides an estimate of the LC_{50} and the precision of this estimate. In Probit Analysis, the percentages of affected organisms are converted to Probits (probability units), and the effluent concentrations are converted to logarithms. The relationship between the Probits and the logarithmic values of the concentrations is approximately linear. A Probit regression line drawn through the data points is used to estimate the LC_{50} and its precision estimate. To use Probit Analysis, at least two partial mortalities must be obtained in the toxicity test.
RWC	Receiving Water Control
UCL	Upper 95-percent Confidence Limit
$\mu E/m^2/s$	Micro-ergs per square meter per second - a measure of <u>light</u> intensity

REFERENCES

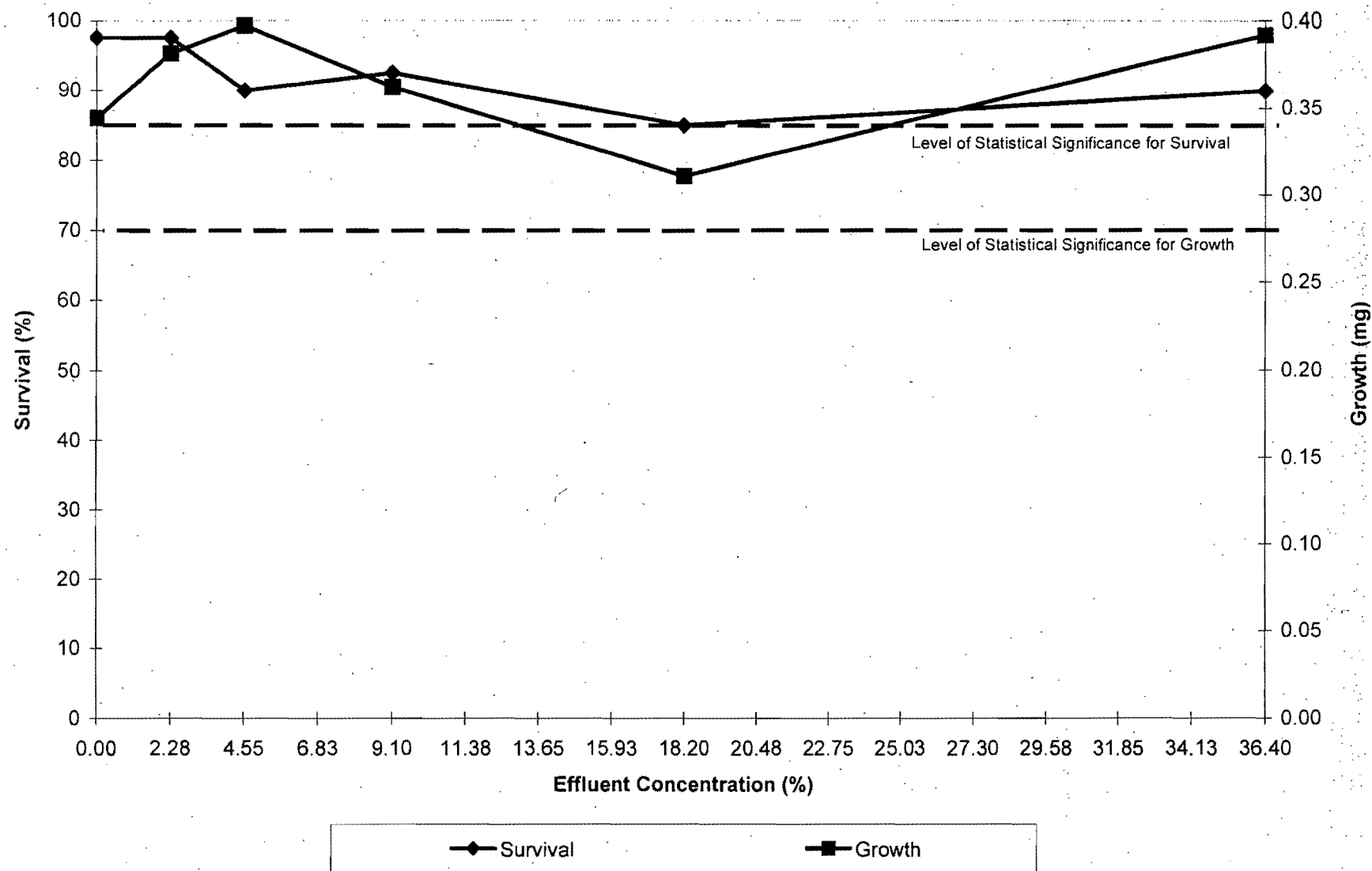
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- U.S. Environmental Protection Agency. 1979. Methods for Chemical Analysis of Water and Wastes. Environmental Monitoring Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH. EPA 600/4-79-020.
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- U.S. Environmental Protection Agency. 2002. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition. Office of Water (4303T), U.S. Environmental Protection Agency, Washington, DC. EPA-821-R-02-013.

FIGURES

Figure 1. Rayonier WWTP Outfall 001/002 Effluent
Water Flea Chronic Toxicity Test
7/19-26/05



**Figure 2. Rayonier WWTP Outfall 001/002 Effluent
Fathead Minnow Chronic Toxicity Test
7/19-26/05**



APPENDIX A

Chemical and Physical Data

Summary of Toxicity Test Conditions for the Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test.

1.	Test type:	Static renewal definitive
2.	Temperature (°C):	24.5-26.0°C
3.	Light quality:	Ambient laboratory illumination
4.	Light intensity:	10-20 $\mu\text{E}/\text{m}^2/\text{s}$, or 50-100 ft-c
5.	Photoperiod:	16 hrs. light, 8 hrs. darkness
6.	Test chamber size:	400 mL
7.	Test solution volume:	250 mL/replicate
8.	Renewal of test concentrations:	Daily
9.	Age of test organisms:	Newly hatched larvae < 48-hr. old
10.	No. larvae per test chamber:	10
11.	No. replicate chambers per concentration:	4
12.	No. larvae per concentration:	40
13.	Feeding regime:	Fed approximately 0.1 to 0.3 mL newly hatched (less than 24-hr. old) brine shrimp nauplii three times daily. Larvae are not fed during the final 12-hr. of the test.
14.	Cleaning:	Siphoned daily, immediately before test solution renewal
15.	Aeration:	None
16.	Dilution water:	Moderately hard synthetic water prepared using MILLIPORE MILLI-Q [®] and reagent grade chemicals
17.	Effluent concentrations:	Control, 2.28%, 4.56%, 9.11%, 18.2%, and 36.4% effluent
18.	Dilution factor:	0.5
19.	Test duration:	7 days
20.	End points:	Survival and growth (dry weight)
21.	Test acceptability:	80% or greater survival in controls; Average dry weight of surviving controls equals or exceeds 0.25 mg.
22.	Sampling requirement:	A minimum of three samples are collected during testing
23.	Sample volume required:	3.0 L per day

Summary of Toxicity Test Conditions for the Water Flea, *Ceriodaphnia dubia*, Survival and Reproduction Test.

1.	Test type:	Static renewal definitive
2.	Temperature (°C):	24.0-26.0 °C
3.	Light quality:	Ambient laboratory illumination
4.	Light intensity:	10-20 $\mu\text{E}/\text{m}^2/\text{s}$, or 50-100 ft-c
5.	Photoperiod:	16-hr. light, 8-hr. darkness
6.	Test chamber size:	30 mL
7.	Test solution volume:	15 mL/replicate
8.	Renewal of test concentrations:	Daily
9.	Age of test organisms:	Newly hatched neonates < 24-hr. old
10.	No. neonates per test chamber:	1
11.	No. replicate chambers per concentration:	10
12.	No. neonates per concentration:	10
13.	Feeding regime:	Fed 0.1 mL each of YCT and algae suspension per test chamber daily
14.	Aeration:	None
15.	Dilution water:	Moderately hard synthetic water is prepared using MILLIPORE MILLI-Q ^R and Perrier.
16.	Effluent concentrations:	Control, 2.28%, 4.56%, 9.11%, 18.2%, and 36.4% effluent
17.	Dilution factor:	0.5
18.	Test duration:	7 days, 60% of control females had 3 broods
19.	End points:	Survival and reproduction
20.	Test acceptability:	80% or greater survival in controls; Average of 15 or more young/surviving female in the control solutions. At least 60% of surviving females in controls should have produced their third brood.
21.	Sampling requirement:	Samples are collected daily, and used within 36-hr. of the time they are removed from the sampling device
22.	Sample volume required:	1.0 L per day

Initial Chemical Characterization of Rayonier WWTP Effluent, LWC, and DMW Used in Short-term Chronic Toxicity Tests, July 19-26, 2005.

Parameter	100% Effluent			Lab Water Control ^b	Diluted Mineral Water ^b
Sample date (time)	7/17-18/05 (not provided)	7/19-20/05 (not provided)	7/21-22/05 (0700-0700)	7/19/05 (1200)	4/5/05 (1200)
Date received (time)	7/19/05 (1005)	7/21/05 (1015)	7/23/05 (1015)	7/19/05 (1200)	4/5/05 (1200)
Temperature upon receipt (°C)	5.0	4.0	7.0	25.0	25.0
Dissolved Oxygen (mg/L)	4.07	6.62	6.57	7.70	7.68
pH	8.29	8.33	8.44	7.86	7.81
Total Alkalinity as CaCO ₃ (mg/L)	945	820	730	70.0	55.0
Total Hardness as CaCO ₃ (mg/L)	192	224	176	96.0	92.0
Conductivity @25°C (µmhos/cm)	3280	3190	3080	300	191
Residual chlorine (mg/L) ^c	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia-nitrogen NH ₃ -N (mg/L) ^c	3.98	3.42	2.85	<0.01	<0.01

Unless otherwise noted, all chemical analyses determined according to EPA 600/4-79-020.

^a LWC, moderately hard reconstituted fresh water

^b DMW, diluted mineral water, moderately hard fresh water

^c Determined by Hach Spectrophotometric Test Kit

Prepared by: ASP 9/7/05

Checked by: MET 9/7/05

MACTEC ENGINEERING AND CONSULTING, INC.

BIOTOX LABORATORY

DAILY WATER QUALITY DATA

(STANDARD EPA CHRONIC TOXICITY TEST)

Client: Rayonier

TEST TYPE: Cerio Definitive

DILUTION/CONTROL ID: DMW01071805

Discharge: #1/#2 Outfall Effluent

AERATION REQUIRED: N

ORGANISM ID: CERB01070805

Location: Jesup, GA

TEST CHAMBER SIZE: 30 ml

FOOD TYPE: YCS/Selenastrum

NPDES NO.: _____

TEST SOLUTION VOL.: 15 ml

DATE/TIME ORGANISMS FED: 1X Daily

DATE/ANALYST								COMMENTS
CONTROL	DMW							
D.O.	INITIAL	7.68	7.77	7.68	7.80	7.83	6.97	7.70
	FINAL	8.31	7.95	7.53	7.80	7.88	7.68	8.07
pH	INITIAL	7.81	8.24	8.20	7.95	7.92	6.52	7.29
	FINAL	8.39	8.27	8.21	8.14	8.03	8.01	8.17
ALKALINITY		70						
HARDNESS		92						
CONDUCTIVITY		191						
TRC mg/l		20.04						
NH3 mg/l		10.01						

CONCENTRATION:	2.28%							
D.O.	INITIAL	7.23	7.82	7.62	7.77	7.74	7.76	7.34
	FINAL	8.20	7.91	7.77	7.77	7.90	7.11	8.00
pH	INITIAL	7.76	8.70	8.22	7.92	7.99	6.98	7.36
	FINAL	8.40	8.36	8.22	8.23	8.11	8.22	8.26
ALKALINITY								
HARDNESS								
CONDUCTIVITY								
TRC mg/l								
NH3 mg/l								

CONCENTRATION:	4.56%							
D.O.	INITIAL	7.07	7.90	7.59	7.60	7.59	7.23	7.36
	FINAL	8.08	7.90	7.62	7.71	7.75	7.01	7.94
pH	INITIAL	7.97	8.76	8.26	8.02	8.01	7.17	7.46
	FINAL	8.46	8.50	8.29	8.39	8.16	8.37	8.39
ALKALINITY								
HARDNESS								
CONDUCTIVITY								
TRC mg/l								
NH3 mg/l								

CONCENTRATION:	9.11%							
D.O.	INITIAL	7.00	7.98	7.55	7.52	7.36	7.40	7.34
	FINAL	8.01	7.90	7.47	7.62	7.62	6.95	7.77
pH	INITIAL	8.26	8.75	8.30	8.08	8.28	7.46	7.59
	FINAL	8.48	8.54	8.30	8.50	8.23	8.50	8.50
ALKALINITY								
HARDNESS								
CONDUCTIVITY								
TRC mg/l								
NH3 mg/l								

CONCENTRATION:	18.20%							
D.O.	INITIAL	6.92	7.92	7.50	7.51	7.35	7.45	7.35
	FINAL	7.91	7.87	7.65	7.64	7.60	6.90	7.71
pH	INITIAL	8.39	8.20	8.38	8.10	8.29	7.93	7.82
	FINAL	8.59	8.62	8.26	8.56	8.29	8.51	8.56
ALKALINITY								
HARDNESS								
CONDUCTIVITY								
TRC mg/l								
NH3 mg/l								

CONCENTRATION:	36.4%							
D.O.	INITIAL	6.89	7.99	7.52	7.70	7.20	7.43	7.30
	FINAL	7.89	7.83	7.69	7.62	7.57	6.89	7.66
pH	INITIAL	8.30	8.22	8.33	8.15	8.29	7.44	8.30
	FINAL	8.49	8.66	8.31	8.32	8.40	8.55	8.53
ALKALINITY	100%	945		820		730		
HARDNESS	100%	192		221		176		
CONDUCTIVITY	100%	3280		3190		3080		
TRC mg/l	100%	20.01		20.01		20.01		
NH3 mg/l	100%	3.98		3.42		2.85		

D.O. 100%:

4.07

pH 100%:

8.29

Sample ID:

05-0111-01

6.62

8.49

05-0115-01

6.57

8.44

05-0116-01

MACTEC ENGINEERING AND CONSULTING, INC.

BIOTOX LABORATORY

DAILY WATER QUALITY DATA

(STANDARD EPA CHRONIC TOXICITY TEST)

CLIENT: St. Mary's
 SAMPLE: Pt. Peter Effluent
 LOCATION: St. Mary's, GA
 NPDES NO.: _____

TEST TYPE: FHM Definitive
 AERATION REQUIRED: N
 TEST CHAMBER SIZE: 400 ml
 TEST SOLUTION VOL.: 250 ml

DILUTION/CONTROL ID: LWC04071805
 ORGANISM ID: CS98107190505
 FOOD TYPE: artemia
 DATE/TIME ORGANISMS FED: 2 X Daily

DATE/ANALYST									COMMENTS
CONTROL: <u>LWC</u>									
D.O.	INITIAL	7.70	7.73	7.62	7.58	7.50	7.35	7.71	
	FINAL	6.91	6.80	7.27	7.29	7.13	7.43	6.89	
pH	INITIAL	7.86	6.85	6.99	7.87	7.33	7.46	7.49	
	FINAL	7.09	7.21	7.77	7.95	7.83	8.30	8.07	
ALKALINITY		55							
HARDNESS		96							
CONDUCTIVITY		300							
TRC mg/l		20.01							
NH3 mg/l		20.01							

CONCENTRATION: <u>2.28%</u>									
D.O.	INITIAL	7.22	7.62	7.51	7.26	7.10	7.30	7.62	
	FINAL	7.01	6.89	7.01	7.11	7.00	7.10	6.70	
pH	INITIAL	7.70	7.01	7.18	7.93	7.46	7.68	7.60	
	FINAL	7.72	7.36	7.94	7.95	7.91	8.25	8.19	
ALKALINITY									
HARDNESS									
CONDUCTIVITY									
TRC mg/l									
NH3 mg/l									

CONCENTRATION: <u>4.56%</u>									
D.O.	INITIAL	7.01	7.50	7.22	7.01	7.25	7.22	7.51	
	FINAL	7.26	6.81	6.86	6.49	6.23	7.00	6.26	
pH	INITIAL	7.93	7.72	7.76	8.01	7.59	7.59	7.59	
	FINAL	7.38	7.52	7.95	8.01	8.05	8.25	8.19	
ALKALINITY									
HARDNESS									
CONDUCTIVITY									
TRC mg/l									
NH3 mg/l									

CONCENTRATION: <u>9.11%</u>									
D.O.	INITIAL	6.86	7.46	7.17	6.94	7.91	7.20	7.47	
	FINAL	7.41	6.91	6.80	7.22	5.91	6.34	6.20	
pH	INITIAL	8.01	7.93	7.55	8.16	7.95	7.95	7.62	
	FINAL	8.00	7.93	8.20	8.22	8.4	8.27	8.22	
ALKALINITY									
HARDNESS									
CONDUCTIVITY									
TRC mg/l									
NH3 mg/l									

CONCENTRATION: <u>18.20%</u>									
D.O.	INITIAL	6.74	7.39	7.08	6.95	7.17	7.14	7.45	
	FINAL	7.46	6.85	6.62	6.61	5.68	5.90	5.86	
pH	INITIAL	8.22	8.08	7.92	8.12	8.06	8.17	7.65	
	FINAL	8.05	8.18	8.25	8.19	8.23	8.25	8.29	
ALKALINITY									
HARDNESS									
CONDUCTIVITY									
TRC mg/l									
NH3 mg/l									

CONCENTRATION: <u>36.4%</u>									
D.O.	INITIAL	6.46	7.34	7.05	6.80	7.02	7.06	7.48	
	FINAL	7.45	6.84	6.57	5.56	7.64	5.66	5.64	
pH	INITIAL	8.32	8.29	8.33	8.22	8.23	8.31	8.08	
	FINAL	8.38	8.32	8.35	8.25	8.25	8.30	8.34	
ALKALINITY	100%	945		820		730			
HARDNESS	100%	192		224		176			
CONDUCTIV	100%	3250		3190		3080			
TRC mg/l	100%	20.01		20.01		20.01			
NH3 mg/l	100%	3.98		3.42		2.85			

D.O. 100%: 4.07 6.62 6.57
 pH 100%: 8.29 8.49 8.44
 Sample ID: 05-0111-01 05-0115-01 05-0116-01

MACTEC ENGINEERING AND CONSULTING

BIOTOX LABORATORY

SPECTROPHOTOMETRIC BENCH SHEET

PARAMETER: CHLORINE	WAVELENGTH: 530 NM
METHOD: HACH PROCEDURES 8167	INSTRUMENT ID: HACH DR/2500
ANALYST: <i>mlf</i>	CURVE REFERENCE: CL2080604
STANDARD REFERENCE: 461	REAGENT REFERENCES:
CLIENT: Rayonier	1) DPD AccuVac: #512
DATE: 7/19/05	

SAMPLE	LAB SAMPLE ID NO.	DATE	%T	MG/L CURVE	CELL CORR FACTOR	STD/BLK CORR	FINAL CONC (MG/L)
DMW	-	7/19/05	93.6	<0.01	0	0	<0.01
LWC	-	7/19/05	93.6	<0.01	0	0	<0.01
DI Blank	-	7/19/05	93.6	<0.01	0	0	<0.01
0.59 mg/L Std.	-	7/19/05	33.4	0.52	0	0	0.52
100% Eff	05-0111-01	7/19/05	115.2	<0.01	0	0	<0.01
100% Eff	05-0115-01	7/21/05	121.4	<0.01	0	0	<0.01
100% Eff	05-0116-01	7/23/05	110.0	<0.01	0	0	<0.01

Mg/L CHLORINE = [(Mg/L CURVE x CELL CORR) + (STANDARD + BLANK CORR)]

1

REVIEWED BY: *CMH*

DATE: *9/7/05*

MACTEC ENGINEERING AND CONSULTING
BIOTOX LABORATORY
TITRIMETRIC BENCH SHEET

PARAMETER: HARDNESS				METHOD REFERENCE: EPA 130.2					
REAGENT REFERENCES:				ANALYST: <u>mb</u>					
1) BUFFER: 502				STANDARD REFERENCE: BKII p. 163					
2) CALMAGITE: 228				CURVE REFERENCE: HRD080604					
3) 0.020 N DISODIUM EDTA: 515				CLIENT: Rayonier					

SAMPLE	LAB SAMPLE ID NO.	DATE	SAMPLE VOLUME	V _{INIT} (mL)	V _{FINAL} (mL)	V _{TOTAL} (mL)	STD CORR +/- mg/l	BLK CORR +/- mg/l	CONC (mg/L)
DMW	-	7/19/05	25/50	0	2.4	2.4	-2	-2	92
LWC	-	7/19/05	25/50	0	2.5	2.5			76
DI Blank	-	7/19/05	25/50	0	0.05	0.05			<0.1
50 mg/L Std.	-	7/19/05	25/50	0	1.35	1.35			50.0
100% Eff	05-0111-01	7/19/05	25/50	0	2.5	2.5			96 x 2 = 192
100% Eff	05-0115-01	7/21/05	25/50	0	2.9	2.9			112 x 2 = 224
100% Eff	05-0116-01	7/23/05	25/50	0	2.3	2.3			88 x 2 = 176

$$\text{Mg/L HARDNESS} = \frac{[V_{\text{total}} + (\text{BLANK CORR} + \text{STD CORR})] \times 50,000 \times N_{\text{titrant}}}{\text{SAMPLE VOLUME}}$$

REVIEWED BY: cap

DATE: 9/6/05

TITRIMETRIC BENCH SHEET

820
= 730

SAMPLE VOLUME

DATE: 8/26/05

SPECTROPHOTOMETRIC BENCH SHEET

DATE: 9/7/05

APPENDIX B

Chain of Custody Records

Rayonier Performance Fibers

Jesup Mill - Environmental Dept.

4470 Savannah Highway

Jesup, GA 31545

(912) 427-5350

(912) 427-5145 FAX

Project:

Whole Effluent Toxicity - NPDES Permit renewal

Purchase Order No. na

To: Laboratory Name / Address / Phone

MACTEC

3200 Town Pointe Drive NW, Suite 100 Kenn

540.389.9361

Sampled by (Printed Name & Written Signature)

Deborah Oder

[illegible]

Relinquished By / Received By (signature):

Date / Time

Relinquished By / Received By (signature):

Date / Time

Relinquished By / Received By (signature):

Date / Time

05-011-01 50

Rayonier Performance Fibers

Jesup Mill - Environmental Dept.

4470 Savannah Highway

Jesup, GA 31545

(912) 427-5350

(912) 427-5145 FAX

Project:

Whole Effluent Toxicity - NPDES Permit renewal

Purchase Order No. JC538675

To: Laboratory Name / Address / Phone

MACTEC

3200 Town Pointe Drive NW, Suite 100 Kennesaw, GA 30144 540.389.9361

Sampled by (Printed Name & Written Signature)

Deborah Oder

912.427.5194

[illegible]

Relinquished By / Received By (signature):

Date / Time

Relinquished By / Received By (signature):

Date / Time

Relinquished By / Received By (signature):

Date / Time



CHARTERED BY: CUC. JDD. RECORD

Nº 05257

MACTEC ENGINEERING AND CONSULTING
BIOTOX LABORATORY
3200 Town Point Drive NW, Suite 100
Kennesaw, GA 30144
(770) 421-3312 • FAX (770) 421-3314

CLIENT
INFORMATION

NAME OF FACILITY: Rayonier Performance Fibers
STREET ADDRESS: 4470 Savannah Highway
CITY/STATE: Jesup / GA ZIP: 31545
NPDES # (NATIONAL OR STATE): GA0003620

PROJECT NAME <u>WET PO#</u> <u>TC 538675</u>		MACTEC PROJECT #	
SAMPLERS (SIGNATURE) <u>[Signature]</u>		SAMPLERS INITIALS (PRINT) <u>DMO</u>	
SAMPLES SHIPPED VIA: FEDEX <input checked="" type="checkbox"/> UPS <input type="checkbox"/> HAND <input type="checkbox"/> OTHER <input type="checkbox"/>			
COOLANT USED: <u>Ice</u> SHIP DATE <u>7-22-05</u>			
SAMPLE INFORMATION		FIELD PARAMETERS	
GRAB SAMPLES: DATE/TIME _____ VOL. _____		GRAB SAMPLES: pH _____	
TIME COMPOSITE: START DATE <u>7-21-05</u> START TIME <u>0700</u>		DO (mg/l) _____ TEMP (°C) _____	
END DATE <u>7-22-05</u> END TIME <u>0700</u>		CHLORINE (residual, mg/L) _____	
VOLUME OF SUBSAMPLES <u><200mL</u> TIME INCREMENT <u>24hr</u>		COMPOSITES: pH (last grab) <u>8.0</u>	
TOTAL VOL. <u>10L</u>		CHLORINE (residual, last grab, mg/L) <u>0</u>	
FLOW-PROPORTIONED COMPOSITE: INITIATED _____		TEMP (last grab, °C) <u>4</u>	
ENDED _____ TOTAL VOL. _____		pH (composed sample, °C) _____	
SET VOL. OF SUBSAMPLE / VOL. FLOW*		TEMP (composed sample, °C) _____	

DATE	TIME	GRAB (x)	COMPOSITE (x)	MATRIX**	SAMPLE STATION DESCRIPTION	TOTAL # OF CONTAINERS	CONTAINER TYPE / NUMBER				BIOTOX USE ONLY	
							1 GALLON	2 LITER	1 LITER	OTHER	TEMP (°C)	LAB #
7/21/05	0700 0700		x	Agg	Outfalls 001 + 002	3			3		7.0	05-016-01

RELINQUISHED BY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>1100</u> <u>7-22-05</u>	RECEIVED BY: _____ (SIGNATURE)	DATE/TIME _____ (SIGNATURE)	RELINQUISHED BY: _____ (SIGNATURE)	RECEIVED BY LABORATORY: <u>[Signature]</u> (SIGNATURE)	DATE/TIME <u>7/23/05</u> <u>1015</u>
---	--	--------------------------------------	-----------------------------------	--	--	--

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW OR SET TIME INCREMENTS, ATTACH SAMPLE AND FLOW INFORMATION.

BIOTOX USE ONLY						
ICE PRESENT?	YES / N	pH	RESIDUAL CL	D.O.	CONDUCTIVITY	VISUAL

Distribution: Original Copy Accompany Sample To Laboratory. Yellow Copy Retained By Sampler.

**MATRIX	
WATER - W	SLUDGE - SL
SOIL - SO	OTHER - NA
SEDIMENT - SD	

APPENDIX C

Test Organism Documents

MACTEC Engineering and Consulting, Inc.
BioTox Laboratory

***Ceriodaphnia dubia* In-house Culture Source Document**

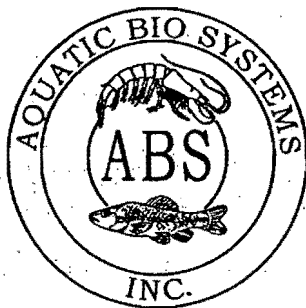
Brood Board ID No.	Brood Board Date	Date/Time Cups Marked	Age of Test Organisms	Water Type/Temp. (°C)	Food Type
CERB01070805	7/8/05	7/19/05 0900	<24-hr	DMW / 25.0	YCT & <i>Selenastrum</i>

MACTEC Engineering and Consulting, Inc.
BioTox Laboratory

***Pimephales promelas* In-house Culture Source Document**

Larvae Batch ID No.	Source	Hatch Date	Age of Test Organisms	Water Type/Temp. (°C)	Food Type
CS981071905	Aquatic BioSystems	7/18/05	<48-hr	LWC / 25.0	<i>Artemia</i>

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524



Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514


ORGANISM HISTORY

DATE: 7/18/05
SPECIES: Pimephales promelas
AGE: N/A
LIFE STAGE: Embryo
HATCH DATE: 7/18/05
BEGAN FEEDING: N/A
FOOD: N/A

Water Chemistry Record:

	Current	Range
TEMPERATURE:	24°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as CaCO ₃):	126 mg/l	--
TOTAL ALKALINITY (as CaCO ₃):	95 mg/l	--
pH:	7.64	--

Comments:


Facility Supervisor

CS981071905
rec'd 7/19/05 1005
09/1/05 6p

APPENDIX D

Laboratory Test Data Sheets and Statistical Analyses

Fathead Minnow

Effluent Test

Mactec Engineering and Consulting, Inc.

BioTox Laboratory

7-day Fathead Minnow Larval Survival and Growth Test (EPA-821-R-02-013, 1000.0)

Discharger: Rayonier
 Location: Jesup, GA
 Sample: #1/#2 Outfall Effluent
 Minnow I.D. #: CS981071905

Test Location:
 INC # 3
 Shelf # 1

Surviving Organisms (alive/dead)										
		Day								
		0	1	2	3	4	5	6	7	
		date: 7/19/05 time: 1455 init: 01	date: 7/20 time: 1300 init: 01	date: 7/21/05 time: 1145 init: 01	date: 7/22 time: 1300 init: 01	date: 7/23 time: 1015 init: 01	date: 7/24 time: 0820 init: 01	date: 7/25 time: 1400 init: 01	date: 7/26/05 time: 1600 init: 01	
Concentration	Rep. #									% Survival
LWC	1	10	10	10	10	10	10	10	10	97.5
	2	10	10	10	10	10	10	10	10	
	3	10	10	10	10	9/1	9	9/1	9	
	4	10	10	10	10	10	10	10	10	
	Temp (°C)	25	24.5	25	25	25.5	25.5	25	25	
2.28%	1	10	10	10	10	10	10	10	10	97.5
	2	10	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	9/1 9/1	9	
	4	10	10	10	10	10	10	10	10	
	Temp (°C)	25	24.5	25	26	25.5	25.5	25	25	
4.56%	1	10	10	10	10	9/1	9	9	9	90
	2	10	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	8/2	8	
	4	10	10	10	10	10	9/1	9	9	
	Temp (°C)	25	25	25	26	25.5	25.5	25	25	
9.11%	1	10	10	10	10	10	10	10	9/1	92.5
	2	10	10	10	10	10	10	10	10	
	3	10	10	10	9/1	9	9	9	9	
	4	10	10	10	10	9/1	9	9	9	
	Temp (°C)	25	24.5	25.5	26	25.5	25.5	25	25	
18.20%	1	10	10	9/1	9	9	9	8/1	8	85
	2	10	10	10	9/1	8/1	8	8	8	
	3	10	10	10	9/1	8/1	8	8	8	
	4	10	10	10	10	10	10	10	10	
	Temp (°C)	25	25	25.5	26	26	26	24.5	25	
36.4%	1	10	10	10	10	10	10	10	10	92.5
	2	10	10	10	10	9/1	9	9	9	
	3	10	10	10	10	10	10	10	9/1	
	4	10	10	10	10	10	10	9/1	9	
	Temp (°C)	25	25	26	25	26	26	24.5	25	

Sample ID: 05-011-01 05-0115-d 05-0116-d1
 Comments:

MACTEC ENGINEERING AND CONSULTING, INC.
BIOTOX LABORATORY

Laboratory weight data for larval survival and growth test

Client: Rayonier
Discharge: #1/#2 Outfall Effluent
Location: Jesup, GA

Test Dates: 7/19-26/05
Organism: P. promelas, CS981071905
Sample ID: _____

Drying Temp.: 61°C
Drying Time: 24 h
Analyst(s): az

Conc.	Replicate No.	Weight of boat (gms)	Dry weight boat and larvae (gms)	Total dry weight of larvae (gms)	Original Number of larvae [day 0]	Mean dry weight per rep. original number of larvae (mg)	Mean dry weight per conc., original number larvae (mg)	Oven In	Times Out
								Date: 7/26	Date: 7/27
LWC	1	0.95998	0.96306		60			1600	1600
	2	0.96188	0.96576						
	3	0.96471	0.96785						
	4	0.95629	0.95994						
2.28%	1	0.96400	0.96799						
	2	0.95741	0.96125						
	3	0.96200	0.96539						
	4	0.96139	0.96540						
4.56%	1	0.95266	0.95697						
	2	0.96082	0.96479						
	3	0.95556	0.95939						
	4	0.96129	0.96506						
9.11%	1	0.96307	0.96662						
	2	0.96212	0.96625						
	3	0.96409	0.96732						
	4	0.96132	0.96488						
18.20%	1	0.95775	0.96059						
	2	0.96250	0.96573						
	3	0.95947	0.96193						
	4	0.94654	0.95045						
36.40%	1	0.96478	0.96865						
	2	0.95223	0.95617						
	3	0.95349	0.95787						
	4	0.96088	0.96485						

MACTEC ENGINEERING AND CONSULTING, INC.
BIOTOX LABORATORY

Laboratory weight data for larval survival and growth test

Client: Rayonier
Discharge: #1/#2 Outfall Effluent
Location: Jesup, GA

Test Dates: 7/19-26/05
Organism: P. promela CS981071905

Drying Temp.: 61 C
Drying Time: 24 hours
Analyst(s): ASP

Conc.	Replicate No.	Weight of boat (gms)	Dry weight boat and larvae (gms)	Total dry weight of larvae (gms)	Original Number of larvae [day 0]	Mean dry weight per rep. original number of larvae (mg)	Mean dry weight per conc., original number larvae (mg)	Oven In Date: 7/26/2005	Times Out Date: 7/27/2005
LWC	1	0.95998	0.96306	0.00308	10	0.308	0.344	1600	1600
	2	0.96188	0.96576	0.00388	10	0.388		1600	1600
	3	0.96471	0.96785	0.00314	10	0.314		1600	1600
	4	0.95629	0.95994	0.00365	10	0.365		1600	1600
2.280%	1	0.96400	0.96799	0.00399	10	0.399	0.381	1600	1600
	2	0.95741	0.96125	0.00384	10	0.384		1600	1600
	3	0.96200	0.96539	0.00339	10	0.339		1600	1600
	4	0.96139	0.96540	0.00401	10	0.401		1600	1600
4.56%	1	0.95266	0.95697	0.00431	10	0.431	0.397	1600	1600
	2	0.96082	0.96479	0.00397	10	0.397		1600	1600
	3	0.95556	0.95939	0.00383	10	0.383		1600	1600
	4	0.96129	0.96506	0.00377	10	0.377		1600	1600
9.11%	1	0.96307	0.96662	0.00355	10	0.355	0.362	1600	1600
	2	0.96212	0.96625	0.00413	10	0.413		1600	1600
	3	0.96409	0.96732	0.00323	10	0.323		1600	1600
	4	0.96132	0.96488	0.00356	10	0.356		1600	1600
18.20%	1	0.95775	0.96059	0.00284	10	0.284	0.311	1600	1600
	2	0.96250	0.96573	0.00323	10	0.323		1600	1600
	3	0.95947	0.96193	0.00246	10	0.246		1600	1600
	4	0.94654	0.95045	0.00391	10	0.391		1600	1600
36.40%	1	0.96478	0.96865	0.00387	10	0.387	0.392	1600	1600
	2	0.95223	0.95617	0.00394	10	0.394		1600	1600
	3	0.95399	0.95787	0.00388	10	0.388		1600	1600
	4	0.96088	0.96485	0.00397	10	0.397		1600	1600

Prepared by
Reviewed by

MBR 8/1/05
ASP 8/15/05

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival

File: 071905PP.S

Transform: ARC SINE(SQUARE ROOT(Y))

Number of Groups: 6

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	0 LWC	1	1.0000	1.4120
1	0 LWC	2	1.0000	1.4120
1	0 LWC	3	0.9000	1.2490
1	0 LWC	4	1.0000	1.4120
2	2.28 %	1	1.0000	1.4120
2	2.28 %	2	1.0000	1.4120
2	2.28 %	3	0.9000	1.2490
2	2.28 %	4	1.0000	1.4120
3	4.56 %	1	0.9000	1.2490
3	4.56 %	2	1.0000	1.4120
3	4.56 %	3	0.8000	1.1071
3	4.56 %	4	0.9000	1.2490
4	9.11 %	1	0.9000	1.2490
4	9.11 %	2	1.0000	1.4120
4	9.11 %	3	0.9000	1.2490
4	9.11 %	4	0.9000	1.2490
5	18.2 %	1	0.8000	1.1071
5	18.2 %	2	0.8000	1.1071
5	18.2 %	3	0.8000	1.1071
5	18.2 %	4	1.0000	1.4120
6	36.4 %	1	1.0000	1.4120
6	36.4 %	2	0.9000	1.2490
6	36.4 %	3	0.9000	1.2490
6	36.4 %	4	0.9000	1.2490

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival
 File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Summary Statistics on Transformed Data TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	0 LWC	4	1.2490	1.4120	1.3713
2	2.28 %	4	1.2490	1.4120	1.3713
3	4.56 %	4	1.1071	1.4120	1.2543
4	9.11 %	4	1.2490	1.4120	1.2898
5	18.2 %	4	1.1071	1.4120	1.1834
6	36.4 %	4	1.2490	1.4120	1.2898

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival
 File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Summary Statistics on Transformed Data TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	0 LWC	0.0066	0.0815	0.0407	5.9424
2	2.28 %	0.0066	0.0815	0.0407	5.9424
3	4.56 %	0.0155	0.1246	0.0623	9.9346
4	9.11 %	0.0066	0.0815	0.0407	6.3179
5	18.2 %	0.0232	0.1524	0.0762	12.8815
6	36.4 %	0.0066	0.0815	0.0407	6.3179

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival

File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's Test for Normality

D = 0.1960

W = 0.9426

Critical W = 0.8840 (alpha = 0.01 , N = 24)

W = 0.9160 (alpha = 0.05 , N = 24)

Data PASS normality test (alpha = 0.01). Continue analysis.

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival
File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Bartlett's Test for Homogeneity of Variance

Calculated B1 statistic = 2.2967 (p-value = 0.8068)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

Critical B = 15.0863 (alpha = 0.01, df = 5)
= 11.0705 (alpha = 0.05, df = 5)

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival

File: 071905PP.S

Transform:

ARC SINE(SQUARE ROOT(Y))

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.1032	0.0206	1.8950
Within (Error)	18	0.1960	0.0109	
Total	23	0.2991		

(p-value = 0.1453)

Critical F = 4.2479 (alpha = 0.01, df = 5,18)

= 2.7729 (alpha = 0.05, df = 5,18)

Since $F < \text{Critical } F$ FAIL TO REJECT H_0 : All equal (alpha = 0.05)

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival
 File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Dunnett's Test - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	TRANS T STAT	SIG 0.05
1	0 LWC	1.3713	0.9750		
2	2.28 %	1.3713	0.9750	0.0000	
3	4.56 %	1.2543	0.9000	1.5852	
4	9.11 %	1.2898	0.9250	1.1044	
5	18.2 %	1.1834	0.8500	2.5468	*
6	36.4 %	1.2898	0.9250	1.1044	

Dunnett critical value = 2.4100 (1 Tailed, alpha = 0.05, df = 5,18)

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Survival
 File: 071905PP.S Transform: ARC SINE(SQUARE ROOT(Y))

Dunnett's Test - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	MIN SIG DIFF (IN ORIG. UNITS)	% OF CONTROL	DIFFERENCE FROM CONTROL
1	0 LWC	4			
2	2.28 %	4	0.0965	10.0	0.0000
3	4.56 %	4	0.0965	10.0	0.0750
4	9.11 %	4	0.0965	10.0	0.0500
5	18.2 %	4	0.0965	10.0	0.1250
6	36.4 %	4	0.0965	10.0	0.0500

Toxicity at 18.2%
 is anomalous, disregard
 NOEC: 36.4%

cap
 8/15/05

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

Number of Groups: 6

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	0 LWC	1	0.3080	0.3080
1	0 LWC	2	0.3880	0.3880
1	0 LWC	3	0.3140	0.3140
1	0 LWC	4	0.3650	0.3650
2	2.28 %	1	0.3990	0.3990
2	2.28 %	2	0.3840	0.3840
2	2.28 %	3	0.3390	0.3390
2	2.28 %	4	0.4010	0.4010
3	4.56 %	1	0.4310	0.4310
3	4.56 %	2	0.3970	0.3970
3	4.56 %	3	0.3830	0.3830
3	4.56 %	4	0.3770	0.3770
4	9.11 %	1	0.3550	0.3550
4	9.11 %	2	0.4130	0.4130
4	9.11 %	3	0.3230	0.3230
4	9.11 %	4	0.3560	0.3560
5	18.2 %	1	0.2840	0.2840
5	18.2 %	2	0.3230	0.3230
5	18.2 %	3	0.2460	0.2460
5	18.2 %	4	0.3910	0.3910
6	36.4 %	1	0.3870	0.3870
6	36.4 %	2	0.3940	0.3940
6	36.4 %	3	0.3880	0.3880
6	36.4 %	4	0.3970	0.3970

Vaz 8/15/05

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

Summary Statistics on Data

TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	0 LWC	4	0.3080	0.3880	0.3438
2	2.28 %	4	0.3390	0.4010	0.3808
3	4.56 %	4	0.3770	0.4310	0.3970
4	9.11 %	4	0.3230	0.4130	0.3618
5	18.2 %	4	0.2460	0.3910	0.3110
6	36.4 %	4	0.3870	0.3970	0.3915

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

Summary Statistics on Data

TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	0 LWC	0.0015	0.0390	0.0195	11.3576
2	2.28 %	0.0008	0.0288	0.0144	7.5768
3	4.56 %	0.0006	0.0242	0.0121	6.0872
4	9.11 %	0.0014	0.0374	0.0187	10.3515
5	18.2 %	0.0038	0.0619	0.0310	19.9063
6	36.4 %	0.0000	0.0048	0.0024	1.2250

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

Shapiro - Wilk's Test for Normality

D = 0.0246

W = 0.9833

Critical W = 0.8840 (alpha = 0.01 , N = 24)

W = 0.9160 (alpha = 0.05 , N = 24)

Data PASS normality test (alpha = 0.01). Continue analysis.

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

Bartlett's Test for Homogeneity of Variance

Calculated B1 statistic = 11.3232

(p-value = 0.0453)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

Critical B = 15.0863 (alpha = 0.01, df = 5)
= 11.0705 (alpha = 0.05, df = 5)

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth

File: 071905PP.G

Transform:

NO TRANSFORMATION

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	0.0214	0.0043	3.1320
Within (Error)	18	0.0246	0.0014	
Total	23	0.0460		

(p-value = 0.0331)

Critical F = 4.2479 (alpha = 0.01, df = 5,18)

= 2.7729 (alpha = 0.05, df = 5,18)

Since $F > \text{Critical } F$ REJECT H_0 : All equal (alpha = 0.05)

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth
 File: 071905PP.G

Transform:

NO TRANSFORMATION

Dunnett's Test - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG 0.05
1	0 LWC	0.3438	0.3438		
2	2.28 %	0.3808	0.3808	-1.4156	
3	4.56 %	0.3970	0.3970	-2.0373	
4	9.11 %	0.3618	0.3618	-0.6886	
5	18.2 %	0.3110	0.3110	1.2530	
6	36.4 %	0.3915	0.3915	-1.8268	

Dunnett critical value = 2.4100 (1 Tailed, alpha = 0.05, df = 5,18)

NOB or
36.4%

Title: Rayonier #1/#2 Outfall 7/19/05 P.promelas Growth
 File: 071905PP.G

Transform:

NO TRANSFORMATION

Dunnett's Test - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	MIN SIG DIFF (IN ORIG. UNITS)	% OF CONTROL	DIFFERENCE FROM CONTROL
1	0 LWC	4			
2	2.28 %	4	0.0630	18.3	-0.0370
3	4.56 %	4	0.0630	18.3	-0.0533
4	9.11 %	4	0.0630	18.3	-0.0180
5	18.2 %	4	0.0630	18.3	0.0327
6	36.4 %	4	0.0630	18.3	-0.0478

< 0.2808

is
signif.

Water Flea

Effluent Test

MACTEC ENGINEERING AND CONSULTING, INC.
BIOTOX LABORATORY
Daily survival and reproduction data for Ceriodaphnia dubia chronic test

Client: Rayonier
 Discharge: #1/#2 Outfall Effluent
 Location: Jesup, GA

Dilution Water ID: DMW01071805
 C. dubia Source ID: CERB01070805
 Template ID:

Test Set-up Date (day 0): 7/19/05
 Test Set-up Time: 1700
 Test Set-up Analyst: ay
 Cup #1 = DMW Cup #2 = 2.28% Cup #3 = 4.56% Cup #4 = 9.11% Cup #5 = 18.20% Cup #6 = 36.4%

DAILY RENEWAL DATES, TIMES, TEMPS, AND ANALYST'S INITIALS													
Day 1: <u>7/20/05</u>	Day 2: <u>7/21/05</u>	Day 3: <u>7/22/05</u>	Day 4: <u>7/23/05</u>	Day 5: <u>7/24/05</u>	Day 6: <u>7/25/05</u>	Day 7: <u>7/26/05</u>							
Time: <u>1245</u>	Time: <u>1500</u>	Time: <u>1615</u>	Time: <u>1130</u>	Time: <u>1001</u>	Time: <u>1400</u>	Time: <u>1300</u>							
Init: <u>ay</u>	Init: <u>ay</u>	Init: <u>ay</u>	Init: <u>ay</u>	Init: <u>ay</u>	Init: <u>ay</u>	Init: <u>ay</u>							

BEHAVIOR KEY					
MF = molten embryo	J = alive adult	# = no. live neonates	MA = missing adult	GA = gravid adult	SA = small adult
MC = molten carapace	X = dead adult	-# = no. dead neonates	Y = male adult	FA = embryonic adult	NB = neonates on bottom

Day	Cup 5	Cup 15	Cup 25	Cup 35	Cup 45	Cup 55	Day	Cup 10	Cup 20	Cup 30	Cup 40	Cup 50	Cup 60
0	✓	✓	✓	✓	✓	✓	0	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓
4	✓3	✓4	✓	✓4	✓3	✓4	4	✓1	✓5	✓2	✓4	✓3	✓
5	✓3	✓9	✓5	✓6	✓4	✓6	5	✓3	✓6	✓	✓10	✓4	✓11
6	✓3	✓9	✓5	✓6	✓4	✓6	6	✓3	✓6	✓1	✓14	✓4	✓11
7	✓10	✓10	✓13	✓5	✓8	✓10	7	✓13	✓10	✓4	✓14	✓18	✓11
Day	Cup 4	Cup 14	Cup 24	Cup 34	Cup 44	Cup 54	Day	Cup 9	Cup 19	Cup 29	Cup 39	Cup 49	Cup 59
0	✓	✓	✓	✓	✓	✓	0	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓
4	✓4	✓2	✓2	✓4	✓3	✓3	4	✓2	✓3	✓4	✓	✓3	✓4
5	✓13	✓8	✓8	✓10	✓14	✓10	5	✓4	✓3	✓5	✓4	✓5	✓10
6	✓10	✓8	✓6	✓8	✓12	✓12	6	✓10	✓3	✓5	✓4	✓5	✓10
7	✓	✓	✓7	✓	✓	✓	7	✓13	✓5	✓15	✓8	✓11	✓
Day	Cup 3	Cup 13	Cup 23	Cup 33	Cup 43	Cup 53	Day	Cup 8	Cup 18	Cup 28	Cup 38	Cup 48	Cup 58
0	✓	✓	✓	✓	✓	✓	0	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓
4	✓3	✓3	✓2	✓3	✓4	✓10	4	✓3	✓3	✓2	✓3	✓3	✓4
5	✓	✓4	✓2	✓4	✓	✓5	5	✓	✓6	✓	✓4	✓5	✓6
6	✓14	✓20	✓10	✓10	✓2	✓11	6	✓4	✓10	✓7	✓5	✓10	✓6
7	✓	✓	✓	✓	✓5	✓11	7	✓9	✓	✓12	✓2	✓2	✓8
Day	Cup 2	Cup 12	Cup 22	Cup 32	Cup 42	Cup 52	Day	Cup 7	Cup 17	Cup 27	Cup 37	Cup 47	Cup 57
0	✓	✓	✓	✓	✓	✓	0	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓
4	✓3	✓	✓1	✓1	✓1	✓2	4	✓3	✓4	✓3	✓2	✓8	✓2
5	✓	✓	✓	✓	✓	✓	5	✓9	✓	✓	✓	✓4	✓7
6	✓15	✓6	✓5	✓8	✓6	✓3	6	✓10	✓2	✓7	✓6	✓10	✓
7	✓8	✓10	✓5	✓14	✓7	✓8	7	✓	✓9	✓13	✓11	✓	✓
Day	Cup 1	Cup 11	Cup 21	Cup 31	Cup 41	Cup 51	Day	Cup 6	Cup 16	Cup 26	Cup 36	Cup 46	Cup 56
0	✓	✓	✓	✓	✓	✓	0	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓
4	✓9	✓5	✓4	✓2	✓5	✓2	4	✓2	✓2	✓3	✓2	✓	✓3
5	✓	✓	✓	✓	✓	✓	5	✓3	✓	✓	✓	✓	✓
6	✓	✓6	✓5	✓1	✓6	✓6	6	✓6	✓4	✓4	✓4	✓6	✓6
7	✓6	✓15	✓13	✓20	✓10	✓1	7	✓7	✓7	✓12	✓6	✓15	✓15

Temperature (°C)						
Day	Cup #1	Cup #11	Cup #21	Cup #31	Cup #41	Cup #51
0	25	25	25	25	25	25
1	25	25	25	25	25	25
2	25.5	25.5	25.5	26	26.0	26.0
3	25	25	25	25	25	25.5
4	25	25	25	25	25	25.5
5	25	25	25	25	25	25
6	25	25	25	25	25	25
7	24.5	24.5	24	24	24	24.5

Test Location	
INC #	003
SHELF #	05

Lab Sample ID:
 Days 0,1,2: 05-0111-01
 Days 3,4: 05-0115-01
 Days 5,6,7: 05-0116-01

MACTEC ENGINEERING AND CONSULTING, INC.
BIOTOX LABORATORY
Ceriodaphnia dubia 3-brood chronic test de-randomization sheet

Client: Rayonier
 Discharge: #1/#2 Outfall Effluent
 Location: Jesup, GA

Dilution Water ID: DMW01071805
 C. dubia Source ID: CERB01070805
 Template ID:

Test Set-up Date (Time): 7/19/2005 (1300)
 Test End Date (Time): 7/26/05 (1300)
 Test Analyst(s): ASP

Cup #1 = DMW Cup #2 = 2.28% Cup #3 = 4.56% Cup #4 = 9.11% Cup #5 = 18.20% Cup #6 = 36.40%

Behavior Key

ME = molten embryo A = alive adult # = no. live neonates MF = missing adult GA = gravid adult SA = small adult
 MC = molten carapace X = dead adult -# = no. dead neonates Y = male adult EA = ephippial adult NB = neonates on bottom

Conc:	DMW								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
1	A	A	A	A	A	9	A	6	15
12	A	A	A	A	A	A	6	10	16
53	A	A	A	A	1	5	11	A	17
24	A	A	A	A	2	5	6	7	20
45	A	A	A	A	3	A	4	8	15
36	A	A	A	A	2	A	4	6	12
17	A	A	A	A	4	A	2	9	15
58	A	A	A	A	4	A	6	8	18
39	A	A	A	A	A	A	4	8	12
10	A	A	A	A	1	A	3	13	17
Original no. of females:	10								15.7
Live neonates per female:									15.7

Conc:	2.28%								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
11	A	A	A	A	A	5	6	15	26
42	A	A	A	A	1	A	6	7	14
33	A	A	A	A	3	4	10	A	17
4	A	A	A	A	4	13	10	A	27
25	A	A	A	A	A	5	13	A	18
56	A	A	A	A	A	3	6	15	24
37	A	A	A	A	2	A	6	11	19
8	A	A	A	A	3	A	4	9	16
29	A	A	A	A	4	A	5	15	24
50	A	A	A	A	3	4	4	18	29
Original no. of females:	10								21.4
Live neonates per female:									21.4

Conc:	4.56%								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
21	A	A	A	A	A	4	5	13	22
32	A	A	A	A	1	A	8	14	23
3	A	A	A	A	3	A	14	A	17
54	A	A	A	A	3	10	12	A	25
15	A	A	A	A	4	A	9	10	23
46	A	A	A	A	A	A	6	15	21
7	A	A	A	A	3	9	10	A	22
28	A	A	A	A	2	A	7	12	21
49	A	A	A	A	3	A	5	11	19
20	A	A	A	A	5	10	10	A	25
Original no. of females:	10								21.8
Live neonates per female:									21.8

Conc:	9.11%								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
31	A	A	A	A	2	A	1	20	23
52	A	A	A	A	2	A	3	8	13
13	A	A	A	A	3	4	20	A	27
44	A	A	A	A	3	14	12	A	29
5	A	A	A	A	3	A	3	10	16
26	A	A	A	A	3	A	4	12	19
47	A	A	A	A	8	4	10	A	22
18	A	A	A	A	3	6	10	A	19
59	A	A	A	A	4	4	10	A	18
40	A	A	A	A	4	10	14	A	28
Original no. of females:	10								21.4
Live neonates per female:									21.4

Conc:	18.20%								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
41	A	A	A	A	A	5	6	10	21
2	A	A	A	A	3	A	5	8	16
23	A	A	A	A	2	2	10	A	14
34	A	A	A	A	4	10	8	A	22
55	A	A	A	A	4	6	10	A	20
16	A	A	A	A	2	A	4	7	13
27	A	A	A	A	3	A	7	13	23
48	A	A	A	A	3	5	10	2	20
9	A	A	A	A	2	4	10	13	29
60	A	A	A	A	A	11	11	A	22
Original no. of females:	10								20.0
Live neonates per female:									20.0

Conc:	36.40%								Total Neonates
Cup #	0	1	2	3	4	5	6	7	
51	A	A	A	A	2	A	6	1	9
22	A	A	A	A	1	A	5	5	11
43	A	A	A	A	4	A	2	5	11
14	A	A	A	A	2	A	8	A	10
35	A	A	A	A	4	A	6	5	15
6	A	A	A	A	2	3	6	7	18
57	A	A	A	A	2	X7			9
38	A	A	A	A	3	4	5	2	14
19	A	A	A	A	3	A	3	5	11
30	A	A	A	A	2	A	1	4	7
Original no. of females:	10								11.5
Live neonates per female:									11.5

Remarks:

Entered by: mbr 8/1/05
 Checked by: asp 8/15/05

Non

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction
 File: 071905CD.R Transform: NO TRANSFORMATION
 Number of Groups: 6

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	0 DMW	1	15.0000	15.0000
1	0 DMW	2	16.0000	16.0000
1	0 DMW	3	17.0000	17.0000
1	0 DMW	4	20.0000	20.0000
1	0 DMW	5	15.0000	15.0000
1	0 DMW	6	12.0000	12.0000
1	0 DMW	7	15.0000	15.0000
1	0 DMW	8	18.0000	18.0000
1	0 DMW	9	12.0000	12.0000
1	0 DMW	10	17.0000	17.0000
2	2.28 %	1	26.0000	26.0000
2	2.28 %	2	14.0000	14.0000
2	2.28 %	3	17.0000	17.0000
2	2.28 %	4	27.0000	27.0000
2	2.28 %	5	18.0000	18.0000
2	2.28 %	6	24.0000	24.0000
2	2.28 %	7	19.0000	19.0000
2	2.28 %	8	16.0000	16.0000
2	2.28 %	9	24.0000	24.0000
2	2.28 %	10	29.0000	29.0000
3	4.56 %	1	22.0000	22.0000
3	4.56 %	2	23.0000	23.0000
3	4.56 %	3	17.0000	17.0000
3	4.56 %	4	25.0000	25.0000
3	4.56 %	5	23.0000	23.0000
3	4.56 %	6	21.0000	21.0000
3	4.56 %	7	22.0000	22.0000
3	4.56 %	8	21.0000	21.0000
3	4.56 %	9	19.0000	19.0000
3	4.56 %	10	25.0000	25.0000
4	9.11 %	1	23.0000	23.0000
4	9.11 %	2	13.0000	13.0000
4	9.11 %	3	27.0000	27.0000
4	9.11 %	4	29.0000	29.0000
4	9.11 %	5	16.0000	16.0000
4	9.11 %	6	19.0000	19.0000
4	9.11 %	7	22.0000	22.0000
4	9.11 %	8	19.0000	19.0000
4	9.11 %	9	18.0000	18.0000
4	9.11 %	10	28.0000	28.0000
5	18.2 %	1	21.0000	21.0000
5	18.2 %	2	16.0000	16.0000
5	18.2 %	3	14.0000	14.0000
5	18.2 %	4	22.0000	22.0000
5	18.2 %	5	20.0000	20.0000
5	18.2 %	6	13.0000	13.0000
5	18.2 %	7	23.0000	23.0000
5	18.2 %	8	20.0000	20.0000
5	18.2 %	9	29.0000	29.0000
5	18.2 %	10	22.0000	22.0000

6	36.4	%	1	9.0000	9.0000
6	36.4	%	2	11.0000	11.0000
6	36.4	%	3	11.0000	11.0000
6	36.4	%	4	10.0000	10.0000
6	36.4	%	5	15.0000	15.0000
6	36.4	%	6	18.0000	18.0000
6	36.4	%	7	9.0000	9.0000
6	36.4	%	8	14.0000	14.0000
6	36.4	%	9	11.0000	11.0000
6	36.4	%	10	7.0000	7.0000

✓ app 8/15/05

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Shapiro - Wilk's Test for Normality

***** Shapiro - Wilk's Test is aborted *****

This test can not be performed because total number of replicates
is greater than 50.

Total number of replicates = 60

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Chi-Square Test for Normality

Actual and Expected Frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	4.0200	14.5200	22.9200	14.5200	4.0200
OBSERVED	2	15	26	14	3

Chi-Square = 1.7222

(p-value = 0.7867)

Critical Chi-Square = 13.277 (alpha = 0.01 , df = 4)

= 9.488 (alpha = 0.05 , df = 4)

Data PASS normality test (alpha = 0.01). Continue analysis.

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Bartlett's Test for Homogeneity of Variance

Calculated B1 statistic = 10.0956

(p-value = 0.0726)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

Critical B = 15.0863 (alpha = 0.01, df = 5)

= 11.0705 (alpha = 0.05, df = 5)

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Summary Statistics on Data

TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	0 DMW	10	12.0000	20.0000	15.7000
2	2.28 %	10	14.0000	29.0000	21.4000
3	4.56 %	10	17.0000	25.0000	21.8000
4	9.11 %	10	13.0000	29.0000	21.4000
5	18.2 %	10	13.0000	29.0000	20.0000
6	36.4 %	10	7.0000	18.0000	11.5000

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Summary Statistics on Data

TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	0 DMW	6.2333	2.4967	0.7895	15.9023
2	2.28 %	27.1556	5.2111	1.6479	24.3509
3	4.56 %	6.1778	2.4855	0.7860	11.4014
4	9.11 %	28.7111	5.3583	1.6944	25.0387
5	18.2 %	22.2222	4.7140	1.4907	23.5702
6	36.4 %	10.7222	3.2745	1.0355	28.4737

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

ANOVA Table

SOURCE	DF	SS	MS	F
Between	5	866.9333	173.3867	10.2776
Within (Error)	54	911.0000	16.8704	
Total	59	1777.9333		

(p-value = 0.0000)

Critical F = 3.3769 (alpha = 0.01, df = 5,54)

= 2.3861 (alpha = 0.05, df = 5,54)

Since $F > \text{Critical } F$ REJECT H_0 : All equal (alpha = 0.05)

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Dunnett's Test - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG 0.05
1	0 DMW	15.7000	15.7000		
2	2.28 %	21.4000	21.4000	-3.1031	
3	4.56 %	21.8000	21.8000	-3.3209	
4	9.11 %	21.4000	21.4000	-3.1031	
5	18.2 %	20.0000	20.0000	-2.3409	
6	36.4 %	11.5000	11.5000	2.2865	

Dunnett critical value = 2.3100 (1 Tailed, alpha = 0.05, df [used] = 5,40)
(Actual df = 5,54)

Title: Rayonier #1/#2 Outfall 7/19/05 C.dubia reproduction

File: 071905CD.R

Transform:

NO TRANSFORMATION

Dunnett's Test - TABLE 2 OF 2

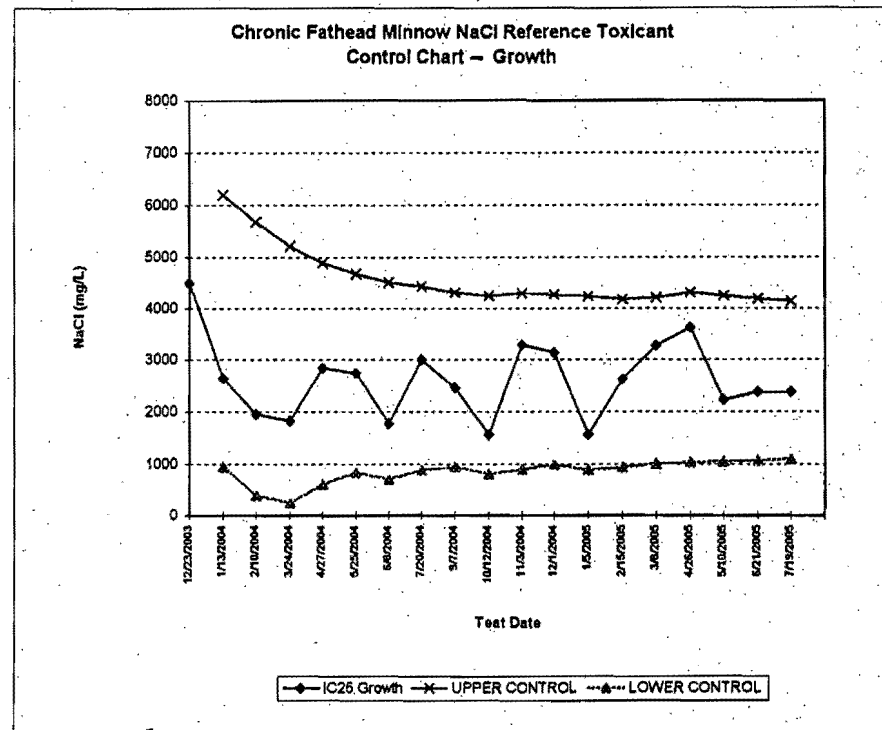
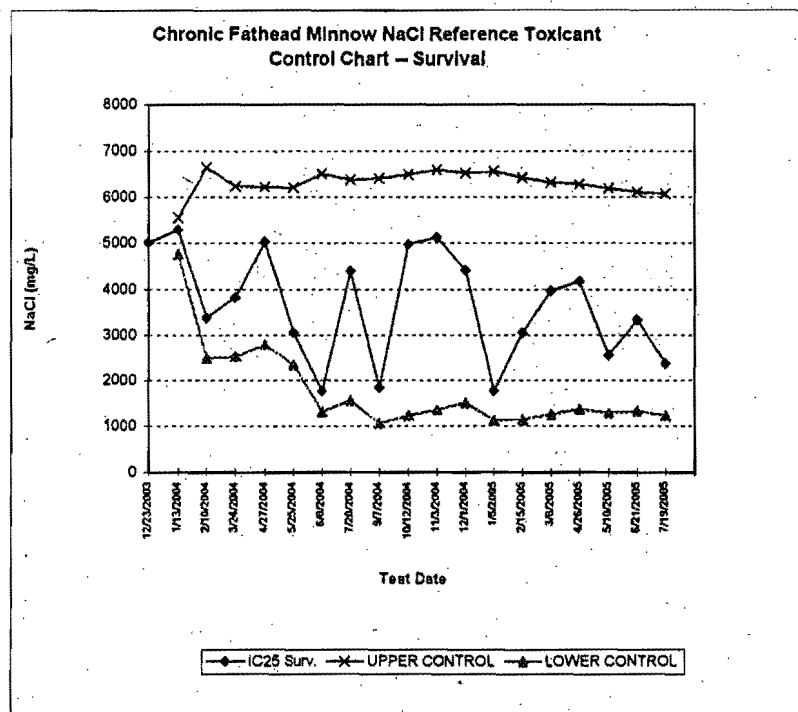
Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	MIN SIG DIFF (IN ORIG. UNITS)	% OF CONTROL	DIFFERENCE FROM CONTROL
1	0 DMW	10			
2	2.28 %	10	4.2432	27.0	-5.7000
3	4.56 %	10	4.2432	27.0	-6.1000
4	9.11 %	10	4.2432	27.0	-5.7000
5	18.2 %	10	4.2432	27.0	-4.3000
6	36.4 %	10	4.2432	27.0	4.2000

< 11.46 is
sign

Fathead Minnow
Reference Toxicant Test

TEST NO.	INITS	DATE	IC25 Surv (Arc-Sine)	CUM MEAN IC25	CUM SD	UPPER CONTROL (+ 2x CUM SD)	LOWER CONTROL (- 2x CUM SD)	IC25 Growth	CUM MEAN IC25	CUM SD	UPPER CONTROL (+ 2x CUM SD)	LOWER CONTROL (- 2x CUM SD)
149	ASP	12/23/2003	5020	5020				4502	4500			
150	ASP	1/13/2004	5305	5160	200	5560	4760	2643	3570	1310	6190	950
151	ASP	2/10/2004	3371	4570	1040	6650	2490	1942	3030	1320	5670	390
152	ASP	3/24/2004	3822	4380	930	6240	2520	1823	2730	1240	5210	250
153	ASP	4/27/2004	5031	4510	860	6230	2790	2837	2750	1070	4890	610
154	ASP	5/25/2004	3048	4270	970	6210	2330	2736	2750	960	4670	830
155	ASP	6/8/2004	1762	3910	1300	6510	1310	1771	2610	950	4510	710
156	ASP	7/20/2004	4400	3970	1210	6390	1550	2999	2660	890	4440	880
157	ASP	9/7/2004	1832	3730	1340	6410	1050	2451	2630	840	4310	950
158	ASP	10/12/2004	4977	3860	1320	6500	1220	1560	2530	860	4250	810
159	ASP	11/3/2004	5136	3970	1310	6590	1350	3292	2600	850	4300	900
160	ASP	12/1/2004	4415	4010	1260	6530	1490	3136	2640	820	4280	1000
161	ASP	1/5/2005	1756	3840	1360	6560	1120	1559	2560	840	4240	880
162	ASP	2/15/2005	3044	3780	1320	6420	1140	2615	2560	810	4180	940
163	ASP	3/8/2005	3970	3790	1270	6330	1250	3282	2610	800	4210	1010
164	ASP	4/26/2005	4176	3820	1230	6280	1360	3637	2670	820	4310	1030
165	ASP	5/10/2005	2541	3740	1230	6200	1280	2217	2650	800	4250	1050
166	ASP	6/21/2005	3331	3720	1200	6120	1320	2366	2630	780	4190	1070
167	ASP	7/19/2005	2366	3650	1210	6070	1230	2369	2620	760	4140	1100

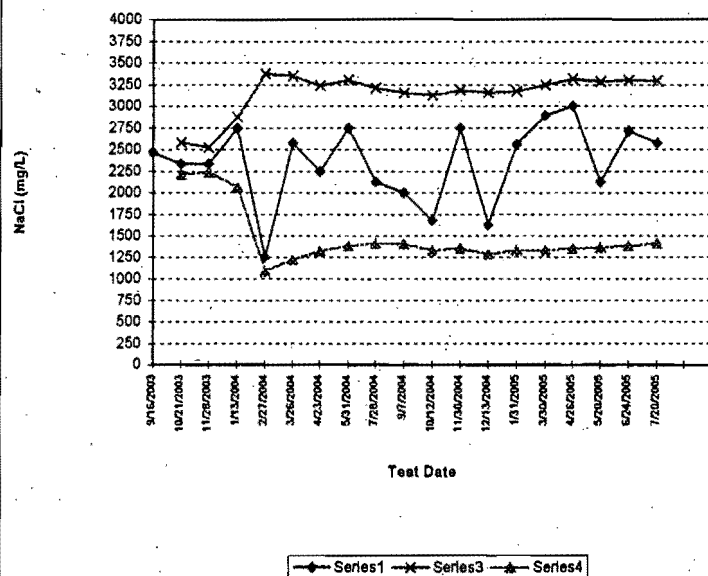


Water Flea
Reference Toxicant Test

C. dubia Chronic NaCl Reference Toxicant Data

Test No.	Inits	Date	C25 Survival (Arc-Sine)	Cumulative Mean IC25	Cumulative SD	UPPER CONTROL (+ 2 cum SD)	LOWER CONTROL (-2 cum SD)	C25 Repro (Arc-Sine)	Cumulative Mean IC25	Cum SD	UPPER CONTROL (+ 2 cum SD)	LOWER CONTROL (-2 cum SD)
121	ASP/MRF	9/16/2003	2461	2460				1199	1200			
122	ASP/MRF	10/21/2003	2333	2400	90	2580	2220	823	1010	270	1550	470
123	ASP	11/28/2003	2333	2380	70	2520	2240	1196	1070	220	1510	630
124	ASP	1/13/2004	2750	2470	200	2870	2070	1092	1080	180	1440	720
125	ASP	2/27/2004	1250	2230	570	3370	1090	1199	1100	160	1420	780
126	ASP	3/26/2004	2571	2280	530	3340	1220	1124	1110	150	1410	810
127	ASP	4/23/2004	2250	2280	480	3240	1320	483	1020	270	1560	480
128	ASP	5/31/2004	2750	2340	480	3300	1380	1099	1030	250	1530	530
129	ASP	7/28/2004	2125	2310	450	3210	1410	1233	1050	250	1550	550
130	ASP	9/7/2004	2000	2280	440	3160	1400	764	1020	250	1520	520
131	ASP	10/12/2004	1681	2230	450	3130	1330	717	990	250	1490	490
132	ASP	11/30/2004	2750	2270	460	3190	1350	930	990	240	1470	510
133	ASP	12/13/2004	1625	2220	470	3160	1280	1259	1010	240	1490	530
134	ASP	1/31/2005	2563	2250	460	3170	1330	1231	1020	240	1500	540
135	ASP	3/30/2005	2889	2290	480	3250	1330	1341	1050	250	1550	550
136	ASP	4/26/2005	3000	2330	490	3310	1350	1152	1050	240	1530	570
137	ASP	5/20/2005	2125	2320	480	3280	1360	1099	1060	230	1520	600
138	ASP	6/24/2005	2708	2340	480	3300	1380	1185	1060	230	1520	600
139	ASP	7/20/2005	2571	2350	470	3290	1410	1173	1070	220	1510	630

Chronic C. dubia NaCl Reference Toxicant Control Chart – Survival



Chronic C. dubia NaCl Reference Toxicant Control Chart – Reproduction

